# LIMITED ENERGY STUDY
# EEAP - DACA01-94-D-0037

FOR

# Fort Monmouth

US Army Corps
of Engineers

U.S. ARMY ENGINEER DISTRICT, NORFOLK
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

## [redacted] FINAL REPORT

Book 1 of 2

Prepared by

ENTECH





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# FT. MONMOUTH
# LIMITED ENERGY STUDY EEAP PROGRAM

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# 1.0 EXECUTIVE SUMMARY

## 1.1 Introduction

This report is a Limited Energy Study (Building 2700) for the Public Works Department at Fort Monmouth, Eatontown, New Jersey participating in the Energy Engineering Analysis Program (EEAP). This program supported by the U. S. Army Engineer District, Norfolk, is used to assist military installations in identifying energy usage and cost saving projects at their facilities and possibly provide funding for projects. Entech Engineering, Inc. was selected to perform this study.

## 1.2 Objectives

The objective of this contract is to address Building 2700's (Myer Center) Central Steam Boiler Plant and the HVAC systems in the building. The work associated with the boiler plant also entails limited study of Building's 2704, 2705, 2706, and 2715. Refer to the detailed statement of work and subsequent correspondence in Appendix 8.13, Book 2 of 2.

## 1.3 Report Organization

The report consists of two books, Book 1 contains the results of the site surveys, analysis, and project development. The following sections are contained within Book 1.

A. Section 2 - Methodology, describes in detail software and techniques used in the analysis.

B. Section 3 - Facility Description, contains tables summarizing building characteristics and components.

C. Section 4 - Building Histories, quantifies existing and historical energy costs for fuel oil, natural gas, and electricity.

D. Section 5 - Energy Calculations, contains calculation results of energy cost by building, systems, and components.

E. Section 6 - Energy Conservation Opportunities, presents analysis of energy saving projects.

F. Section 7 - Summary of ECO results.

Book 2 contains the Statement of Work and report backup data.

## 1.4 Facilities Description

Building 2700 is a large structure that encompasses approximately 700,000 gross square feet of floor area on four (4) floor levels, a partial basement floor level and a partial mezzanine level on the first floor. Activities within the building include research and development for electronics.

Building 2700 is supported by two boiler plants. The original central steam plant located in the basement also supports the buildings listed previously. Building 2706 located next to Building 2700 houses a new hot water boiler plant that supports a portion of the heating loads in Building 2700. An inventory of the buildings involved is shown in Table 1.4.1.

**Building Inventory**
**Table 1.4.1**

| Building | Type | Floor (sf) |
|---|---|---|
| 2700 | Research & Development | 700,000 |
| 2704 | Research & Development | 7,100 |
| 2705 | Night Vision Lab | 47,592 |
| 2706 | Utility | 5,000 |
| 2715 | Storage | 3,000 |

## 1.5 Energy Usage

The average energy usage in Building 2700 for 1994/1995 is shown in Table 1.5.1. The fuel costs for No. 6 Fuel Oil for 1994/1995 were $334,250. The estimated comparable natural gas costs for this period would have been $478,000. The electric costs for Building 2700 are estimated to be $1,444,000.

**1994/1995 Average Energy Summary for Building 2700**
**Table 1.5.1**

| Energy | Energy Unit Total | mmBtu/ unit | Cost Total |
|---|---|---|---|
| No. 6 Fuel Oil ($0.69/gal) | 484,420 | 67,670 | $334,250 |
| Natural Gas ($7.50/mcf) (see note) | 63,720 | 65,695 | $478,000 |
| Electric Demand ($8.67/kW avg.) | 38,389 | 131 | $332,850 |
| Electric Usage ($0.0682/kWh avg.) | 16,290,145 | 55,600 | $1,111,150 |

Note: Excluding the comparable costs for natural gas the total yearly energy costs for Building 2700 are estimated to be near $1,780,000.

## 1.6 Summary of ECO Results

The summary of results for the ECOs evaluated in this report are shown in Table 1.6.1

## ECO Su

| ECO # | ECO Description | Implementation C | | |
|---|---|---|---|---|
| | | Construction Cost | SIOH Cost | Desi Cos |
| 1 | Steam Decentralization, Base Case | $1,199,000 | $67,000 | $73, |
| 1A | New Steam Boilers in Building 2700 | | | |
| 1B | New Hot Water Boilers for Cleanroom | $1,229,000 | $69,000 | $74, |
| 1C | Operate Cleanrooms with MCA Hot Water | | | |
| 1D | Electric Domestic Hot Water Generator | | | |
| 1E | Decentralize Domestic Hot Water | $1,238,000 | $69,000 | $75, |
| 2 | Building 2700 MCA System ±5°F Temp. Setback Control | $46,200 | $2,500 | $2, |
| 3 | Reduce Building Infiltration | $86,000 | $4,700 | $5, |
| 4 | Replace Existing Central Chillers | $258,900 | $14,000 | $16, |
| 5 | Convert Specific Air Cooled Chillers to Water Cooled | $249,500 | $14,000 | $15, |
| 6 | Free Cooling | $80,400 | $4,000 | $5, |
| 7 | 2-Speed Fan Operation | $26,600 | $1,500 | $1,6 |
| 8 | Replace DHW Recirculation Pumps | | | |
| 9 | Automated MCA HW Temperature Reset | $12,500 | $700 | $8 |
| 10 | Full Chilled Water Storage | $800,000 | $44,000 | $48,0 |
| 11 | Partial Chilled Water Storage | $490,000 | $27,000 | $29,0 |
| 12 | Variable Flow Primary-Secondary Chilled Water Dist. | $158,700 | $8,700 | $9,5 |



1

# ECO Summary for Fort Monmouth
## Table 1.6.1

| | Implementation Costs | | | | Annual Savings | | | |
|---|---|---|---|---|---|---|---|---|
| | Construction Cost | SIOH Cost | Design Cost | Total Cost | Gas mmBtu | Gas Cost | Electric mmBtu | Electric Cost |
| | $1,199,000 | $67,000 | $73,000 | $1,339,000 | 36,685 | $267,000 | (67) | ($1,08 |
| | | | | $0 | | | | |
| | $1,229,000 | $69,000 | $74,000 | $1,372,000 | 37,525 | $273,000 | (119) | ($2,98 |
| 'ater | | | | $0 | | | | |
| r | | | | $0 | | | | |
| | $1,238,000 | $69,000 | $75,000 | $1,382,000 | 39,235 | $285,510 | (984) | ($19,661 |
| ıp. Setback | $46,200 | $2,500 | $2,800 | $51,500 | 623 | $4,500 | 1,887 | $34,20 |
| | $86,000 | $4,700 | $5,300 | $96,000 | 1,329 | $9,700 | (2) | $ |
| | $258,900 | $14,000 | $16,000 | $288,900 | | | 1,018 | $25,06 |
| ) Water Cooled | $249,500 | $14,000 | $15,000 | $278,500 | | | 274 | $7,36 |
| | $80,400 | $4,000 | $5,000 | $89,400 | | | 183 | $4,40 |
| | $26,600 | $1,500 | $1,600 | $29,700 | | | 141 | $2,60 |
| | | | | $0 | | | | |
| et | $12,500 | $700 | $800 | $14,000 | 351 | $2,500 | | |
| | $800,000 | $44,000 | $48,000 | $892,000 | | | 420 | $36,20 |
| | $490,000 | $27,000 | $29,000 | $546,000 | | | 111 | $14,90 |
| ed Water Dist. | $158,700 | $8,700 | $9,500 | $176,900 | | | 474 | $9,20 |

'ort Monmouth
6.1

| | Annual Savings | | | | | | LCCID Payback | LCCID SIR |
|---|---|---|---|---|---|---|---|---|
| ost | Gas mmBtu | Gas Cost | Electric mmBtu | Electric Cost | $/mmBtu | Recurring Maintenance | | |
| ,000 | 36,685 | $267,000 | (67) | ($1,089) | $16.25 | $190,000 | 2.9 | 5.32 |
| $0 | | | | | | | | |
| ,000 | 37,525 | $273,000 | (119) | ($2,989) | $25.12 | $190,000 | 3.0 | 5.25 |
| $0 | | | | | | | | |
| $0 | | | | | | | | |
| ,000 | 39,235 | $285,510 | (984) | ($19,661) | $19.98 | $170,000 | 3.2 | 5.00 |
| ,500 | 623 | $4,500 | 1,887 | $34,200 | $18.12 | | 1.3 | 10.7 |
| ,000 | 1,329 | $9,700 | (2) | $0 | $0.00 | | 9.9 | 1.7 |
| ,900 | | | 1,018 | $25,066 | $24.62 | | 11.5 | 1.2 |
| ,500 | | | 274 | $7,367 | $26.89 | | 37.8 | 0.4 |
| ,400 | | | 183 | $4,408 | $24.09 | | 20.3 | 0.7 |
| ,700 | | | 141 | $2,600 | $18.44 | | 11.4 | 1.2 |
| $0 | | | | | | | | |
| ,000 | 351 | $2,500 | | | | | 5.5 | 3.1 |
| ,000 | | | 420 | $36,200 | $86.19 | | 24.6 | 0.6 |
| ,000 | | | 111 | $14,900 | $134.23 | | 36.7 | 0.4 |
| ,900 | | | 474 | $9,200 | $19.41 | | 19.2 | 0.7 |

## 1.7 Conclusion

The primary focus for this analysis was to determine the practicality of continued use of the central steam boiler plant in Building 2700. The findings reflect that with the new hot water boiler installation in Building 2706 supporting a large portion of Building 2700, the old centralized system is entirely too large and outdated to continue based on energy costs and maintenance and operation costs.

However, identifying cost effective Energy Conservation Opportunities associated with Building 2700's HVAC systems was limited. Two primary reasons were the part-time use of the central chiller system with the MCA 2-pipe heating and cooling system, and the large number of miscellaneous systems that support the remainder of this 700,000 square foot building.

In summary, only four (4) ECOs have been recommended for implementation out of the list identified in Table 1.6.1.

The ECOs were then categorized into one of the five types of projects. The five include:

1. Recommended ECIP
2. Recommended Non-ECIP O&M Projects
3. Recommended Non-ECIP LC/NC Projects
4. Recommended Non-ECIP General Projects
5. Non-feasible (listed as group in Section 7 only).

The criteria used to place the ECOs into these categories is detailed in Section 7. Of those, only one is considered to be eligible for ECIP designation.

That project ECO-1 (Base Case), decentralizes the central steam boiler plant by placing loads on the new hot water heating system, placing new boilers in areas/buildings that can not be supported by the hot water system, and provides new equipment for Building 2700's domestic hot water system, and where applicable in the cafeteria.

**Recommend ECIP Projects**
**Table 1.7.1**

| ECO # | Description | Total Cost | Annual Energy Savings | Annual Maint. Savings | LCCID Payback | LCCID SIR | Energy Savings (mmBtu) |
|---|---|---|---|---|---|---|---|
| 1 | Steam Decentralization | $1,339,000 | $265,911 | $190,000 | 2.9 | 5.32 | 623 (Gas)<br>1,887 (Elec.) |

Total Savings #455,911 2,510

The remaining three (3) recommended ECOs are Non-ECIP LC/NC (Low Cost/ No Cost) projects. All three have potential for savings, and improved control for the system/building operations. The three are listed below:

**Recommend Non-ECIP LC/NC Projects**
**Table 1.7.2**

| ECO # | Description | Total Cost | Annual Energy Savings | Annual Maint. Savings | LCCID Payback | LCCID SIR | Energy Savings (mmBtu) |
|---|---|---|---|---|---|---|---|
| 2 | Bldg 2700 MCA System ±5° Temp. Setback Control | $51,500 | $38,700 | $0 | 1.3 | 10.70 | 36,685 (Gas)<br>(67) (Elec.) |
| 9 | Automated MCA HW Temp. Reset | $14,000 | $2,500 | $0 | 5.5 | 3.10 | 351 (Gas) |
| 3 | Reduce Building Infiltration | $96,000 | $9,700 | $0 | 9.9 | 1.7 | 1,329 (Gas)<br>(2) (Elec.) |

Total #50,900 38,296

Note: Refer to Section 2.6.6 for an explanation about the LCCID program.

455,911
50,900
# 506,811

2,510
38,296
40,806 MBTU

The following is a suggested implementation approach for the recommended ECOs.

A. ECIP Project:

Budget $1.4 million for the steam centralization project (ECO-1). Budget additional funding as required to accommodate a specified amount of demolition of boiler plant equipment, piping, etc. Planning and scope development for the demolition work not required for project implementation has yet to be determined. The alternate selection of ECO-1 (Option B) would be made if hot water boilers are desired in lieu of steam for controlling Building 2700's cleanrooms.

B. Non-ECIP LC/NC Projects

Implement the Non-ECIP LC/NC Projects where possible. Details surrounding the implementation of ECO-3 (Infiltration Reduction) will require additional effort towards identifying a project scope and plan. That level of effort is beyond the limited energy study parameters. A detailed review of all the exhaust systems and their users would have to be completed before the implementation scope cost estimates and projected savings can be established for ECO-3. What we have presented here are the ECO figures to be considered prior to pursuing the project further as an energy saving opportunity.

On a final note, the decentralization of the central plant in Building 2700 not only will have significant savings, it should also improve the comfort and operations of the involved buildings and systems.

## 2.0 METHODOLOGY

### 2.1 General

The intention of this energy report is to assess the Myer Center's (Building 2700) current energy consumption and provide recommendations to improve energy efficiency. Entech has developed a thorough format which is adhered to during the development of an energy report. This format has permitted Entech to construct comprehensive reports in a smooth and timely process. Entech has employed the format in the preparation of over five-hundred (500) energy studies for commercial, industrial, and institutional clients.

The following is a listing of the components in Entech's methodology for completing energy studies:

1. Kickoff Meeting
2. Data Collection/Initial Review
3. Site Inspection
4. Model Existing Energy Characteristics
5. Energy Conservation Opportunities
6. Draft Report generation
7. Client Review
8. Final Report Generation

### 2.2 Kickoff Meeting

In order to initiate the process, Entech scheduled a kickoff meeting at Building 2700 on July 21, 1995. Entech was represented by Jeff Euclide and Matt Lloyd. Mr. James Kendall, Norfolk District Corp. of Engineers, and Mr. Kevin Dooney and Mr. William Van Sant, Ft. Monmouth represented the government.

The purpose of the meeting was to introduce both parties and explain the process Entech would follow during the study. In addition, the government's expectations were noted and incorporated into the project.

## 2.3 Data Collection/Initial Review

Prior to the first site inspection, Entech requested electric, oil and gas billing data for Building 2700. Entech reviewed data available to aid in determining the applicable incremental rate and where possible operating profiles for the building systems. In addition, Entech visited the site, reviewed existing drawing files, and copied certain building construction drawings for use in compiling data for this report.

## 2.4 Site Inspection

Entech performed site inspections of Building 2700 during the months of August through November 1995. During these visits, Entech observed and investigated the central utilities, and Building 2700 space usage and associated HVAC systems. In addition to the information gathered for Building 2700, Entech visited other buildings connected to the central boiler plant located in Building 2700.

Central Utilities: Entech visited the central boiler plant (Building 2700) and the central chilled water/heating water plant (Building 2706), recorded equipment information, and interviewed plant personnel relative to plant operations. Boiler logs were obtained to help establish a two year steam production history for the plant. Chiller logs were not available.

Building 2700 Space Usage: Each area was evaluated to determine the type of operating use such as office space, storage, electronics labs, miscellaneous labs, cleanrooms, etc. Sound and reasonable assumptions were made from these evaluations about the lighting consumption, non-HVAC (miscellaneous) equipment consumption, and ventilation and/or infiltration rates where applicable or evident from design drawings.

Areas were categorized into general types and recorded by floor to determine the total square footage of each type on each floor. This information will then be used to generate heating and cooling load models for Building 2700.

HVAC Systems: During the building survey of each floor, Entech investigated the associated heating, air conditioning and ventilation systems. Some areas were not accessible due to security clearance regulations. For the most part though, equipment sizes, horsepowers, etc., and corresponding heating and cooling load data were developed by evaluating both the air moving devices and the external support equipment; by reviewing building drawings and equipment lists; and by external inspection of areas through windows, doorways, etc. where not accessible.

Miscellaneous Buildings: Buildings 2704, 2705 and 2715 were visited to determine the connected steam requirements for each. Design drawings were acquired to aid in determining the individual building's portion of the central plant steam load.

Entech interviewed building personnel to obtain an accurate overview of building function and operation. A preliminary list of potential Energy Conservation Opportunities (ECOs) was developed during early site inspections. Upon completion of final inspections and after acquiring a better understanding of Building 2700 systems a list of ECO's was generated for evaluation.

## 2.5 Model Existing Energy Consumption

### 2.5.1 General

Once the site investigation phase is complete, Entech models the existing operation of energy users within the building. Entech uses in-house computer programs, purchased computer programs, and literature to assist in calculating current energy costs for HVAC equipment, miscellaneous equipment and lighting systems. The main computer models used to estimate energy use are as follows:

1. Steam Use Model
2. Heat Gain Model (Degree Day Method)
3. Heat Gain/Loss Model (EZDOE Method)
4. Electric Model

The standard abbreviations used in this report include the following:

**Standard Abbreviations**

| Key | Description | Key | Description |
|---|---|---|---|
| Ave | Average | lbm | Pound Mass |
| Btu | British Thermal Unit | lbs | Pounds |
| Btuh | British Thermal Unit per Hour | lb/hr | Pounds per Hours |
| cfm | cubic feet per minute | mlbs | Thousand Pounds |
| °F | Degrees Fahrenheit | mcf | Thousand Cubic Feet |
| ft | Feet | min | Minute |
| gal | Gallon | mmBtu | Million British Thermal Unit (MBH) |
| hr | Hour | mo | Month |
| in | Inches | psig | Pounds per Square Inch Gauge |
| kW | Kilowatt | sf | Square Foot |
| kWh | Kilowatt Hour | yr | Year |

### 2.5.2 Steam Use Model

Entech developed a model that examines how all of the steam produced at the boiler plant in Building 2700 is used. The steam produced is used for building heating, reheat, domestic hot water, and cafeteria use. The boiler plant uses a portion of the steam to preheat boiler feedwater. The remainder or residual of the energy consumed to produce steam is lost in the distribution system through leaks, the overheating of spaces, and as heat loss from the piping. Each of the steam uses will be examined in the energy model section of this report. Please refer to the energy models in Section 5 for more detail about the following steam uses.

Steam Uses

1. Space Heating
2. Reheat
3. Domestic Hot Water
4. Cafeteria Steam Use
5. Boiler Plant Steam Use
6. System/Distribution Losses

### 2.5.3 Heat Loss Model (Degree Day Method)

A building heat loss model, based upon the ASHRAE Degree Day Method, was developed for Building 2700. This computer model is one of the tools utilized by Entech to determine the heating usage and costs of a particular building. The model estimates the design heat loss in Btu/hr and also approximates energy usage and costs associated with space heating. In a building with high internal loads, like Building 2700, the estimated Heat Loss Model usage and cost figures will generally be higher (10-50%) than what is actually experienced. Whereas the design day demand predicted by this model is close (±10-20%) to the actual experienced.

A sample heat loss model is shown in Table 2.5.3.1 at the end of this sub section. The sample model is not particular to any building or area, rather it is only to be used as an example for methodology explanation. The building is divided into various heating zones that possess distinct characteristics. Wherever possible, the space or zone reflects the actual zoning of the heating system. The various areas are combined to give a total building model of space heating.

The model is divided into three sections as follows:

<u>Exterior Data:</u> The heat loss attributed to transmission losses through walls, windows, doors, and roofs. A U-value is calculated for each building element and is shown at the bottom of the page.

<u>Ventilation/Infiltration:</u> For the heat loss attributed to the ventilation system, wherever possible, building design data was used to calculate the amount of outside air (cfm) being brought in for ventilation. Infiltration was based on air change estimates based on the following building construction:

| | | |
|---|---|---|
| Tight | 0.3 | Air change/hr |
| Average | 0.6 | Air change/hr |
| Leaky | 1.0 | Air change/hr |

In some cases where ventilation and infiltration are both contributing to a building or space load, the infiltration value will be adjusted to represent a reasonable amount of air passing through the building. The value used is shown at the bottom of Table 2.5.3.1.

<u>Below Grade:</u> The heat loss through the floor and any underground walls. The average ground temperature is assumed to be 50°F.

Each zone has three lines of information. The first line is the input data used such as wall areas, window area, etc. The second line is the calculated design heat loss (in Btu/hr) based upon the input data. This number represents the amount of heat loss during the design condition of 10°F outside temperature.

For example, in Table 2.5.3.1, the window area in zone 1 is 360 sf. The associated heat loss through the window is therefore, 12,276 Btu/hr and is calculated as follows.

$$Heat\ Loss = 360\ sf \times 0.55\ \frac{Btu}{sf \cdot {}^{\circ}F \cdot hr} \times (72^{\circ}F - 10^{\circ}F)$$

The third line is the estimated energy cost for the year based on the heating degree day formula. This procedure is based on Chapter 28 of the 1993 ASHRAE Fundamentals Handbook. In our example, using the zone 1 windows, the annual energy cost associated with transmission losses through the windows is $97 per year using No. 2 fuel oil.

$$Cost = \frac{\left( HeatLoss \times hdd \times 24 \frac{hr}{day} \right)}{\left( (outtemp - intemp) \times 1{,}000{,}000\ \frac{Btu}{mmBtu} \right)} \times \frac{\$}{mmBtu} \times C_D$$

$$Cost = \frac{\left( 12{,}276\ \frac{Btu}{hr} \times 5{,}034 hdd \times 24 \frac{hr}{day} \right)}{\left( (72^{\circ}F - 10^{\circ}F) \times 1{,}000{,}000 \frac{Btu}{mmBtu} \right)} \times \frac{\$6.55}{mmBtu} \times 0.62$$

$C_D$ is an empirical correction factor for heating effect versus 72°F degree days found in the ASHRAE Fundamental Handbook.

# Sample Heat Loss Model (Degree Days)
# Table 2.5.3.1
# Ft. Monmouth, Myer Center - Bldg. 2700

| | | EXTERIOR DATA | | | | | | | VENTILATION, INFILTRATION INTERIOR DATA | | | | | BELOW GRADE | | | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SPACE NAME | | WALL HEIGHT FT | WALL LENGTH FT | WINDOW AREA SQ FT | DOOR AREA SQ FT | WALL AREA SQ FT | WALL U FAC | ROOF AREA SQ FT | CEILING HEIGHT FT | FLOOR AREA SQ FT | SPACE VOLUME CU FT | INF AIR CHANGE CFM | VENT AIR CFM | WALL HT FT | WALL LENGTH FT | FLOOR AREA SQ FT | HEAT LOSS BTU/HR |
| Building | | 10.0 | 300 | 360 | 50 | 2,590 | 0.09 | 15,000 | 8.0 | 69,430 | 555,440 | 5,554 | 3,000 | 0 | 0 | 0 | |
| | BTU/HR | | | 12,276 | 3,100 | 14,452 | | 102,300 | | | | 371,923 | 200,880 | | 0 | 0 | 704,931 |
| | COST-$ | | | $97 | $25 | $114 | | $809 | | | | $2,941 | $1,589 | | $0 | $0 | $5,575 |
| | | 0.0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | BTU/HR | | | 0 | 0 | 0 | | 0 | | | | 0 | 0 | | 0 | 0 | 0 |
| | COST-$ | | | $0 | $0 | $0 | | $0 | | | | $0 | $0 | | $0 | $0 | $0 |
| | | 0.0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | BTU/HR | | | 0 | 0 | 0 | | 0 | | | | 0 | 0 | | 0 | 0 | 0 |
| | COST-$ | | | $0 | $0 | $0 | | $0 | | | | $0 | $0 | | $0 | $0 | $0 |
| | | 0.0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | BTU/HR | | | 0 | 0 | 0 | | 0 | | | | 0 | 0 | | 0 | 0 | 0 |
| | COST-$ | | | $0 | $0 | $0 | | $0 | | | | $0 | $0 | | $0 | $0 | $0 |
| | | 0.0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | BTU/HR | | | 0 | 0 | 0 | | 0 | | | | 0 | 0 | | 0 | 0 | 0 |
| | COST-$ | | | $0 | $0 | $0 | | $0 | | | | $0 | $0 | | $0 | $0 | $0 |
| | | 0.0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | BTU/HR | | | 0 | 0 | 0 | | 0 | | | | 0 | 0 | | 0 | 0 | 0 |
| | COST-$ | | | $0 | $0 | $0 | | $0 | | | | $0 | $0 | | $0 | $0 | $0 |
| | | 0.0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | BTU/HR | | | 0 | 0 | 0 | | 0 | | | | 0 | 0 | | 0 | 0 | 0 |
| | COST-$ | | | $0 | $0 | $0 | | $0 | | | | $0 | $0 | | $0 | $0 | $0 |
| | | 0.0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | BTU/HR | | | 0 | 0 | 0 | | 0 | | | | 0 | 0 | | 0 | 0 | 0 |
| | COST-$ | | | $0 | $0 | $0 | | $0 | | | | $0 | $0 | | $0 | $0 | $0 |
| | | 0.0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | BTU/HR | | | 0 | 0 | 0 | | 0 | | | | 0 | 0 | | 0 | 0 | 0 |
| | COST-$ | | | $0 | $0 | $0 | | $0 | | | | $0 | $0 | | $0 | $0 | $0 |
| TOTALS | | | 300 | 360 | 50 | 2,590 | | 15,000 | | 69,430 | 555,400 | 5,554 | 3,000 | | 0 | 0 | |
| | BTU/HR | | | 12,276 | 3,100 | 14,452 | | 102,300 | | | | 371,923 | 200,880 | | 0 | 0 | 704,931 |
| | COST-$ | | | $97 | $25 | $114 | | $809 | | | | $2.941 | $1,589 | | $0 | $0 | $5,575 |

| | |
|---|---|
| OUTSIDE TEMPERATURE(°F) | 10 |
| INSIDE TEMPERATURE (°F) | 72 |
| DELT TEMPERATURE (°F) | 62 |
| HEATING DEGREE DAYS/YR. | 5,034 |
| FUEL COST, $/UNIT | $0.69 |
| HT VALUE, MMBTU/UNIT | 0.1387 |
| SYSTEM EFFICIENCY (.XX) | 76.0% |
| $/MMBTU (WITH EFF.) | $6.55 |

| | |
|---|---|
| DOOR U FACTOR (BTU/SQFT*F*H) | 1 |
| WINDOW U FACTOR (BTU/SQFT*F*H) | 0.55 |
| ROOF U FACTOR (BTU/SQFT*F*H) | 0.11 |
| GRND FLOOR FACTOR (BTU/SQFT*H) | 0.4 |
| GRND WALL FACTOR (BTU/SQFT*H) | 0.4 |
| ANNUAL COST FACTOR ($/YR/BTU/HR) | 0.007909 |
| C (D) | 0.62 |

| | |
|---|---|
| WIND VELOCITY (MPH) | 15 |
| INFILTRATION AIR CHANGES/HR | 0.6 |
| INFILTRATION AIR CHANGE FACTOR | 0.010000 |
| WINTER GRND WATER TEMP (°F) | 50 |
| GROUND TEMP DELTA TEMP (°F) | 22 |
| GROUND WALL FACTOR | 0.3 |
| BELOW GRADE DEL TEMP (AD USTED) | 6.6 |
| GROUND FLOOR FACTOR | 1.995 |

| | |
|---|---|
| HEAT LOSS, MMBTU/YR | 1,121 |
| HEAT LOSS,BTU/DEG DA | 222,610 |
| UNITS FUEL/DEG DAY | 1.61 |
| UNITS FUEL/YR | 8,080 |
| COST, $/SF/YR | $0.08 |
| COST, $/CF/YR | $0.0100 |
| BTU/HR/SF: | 10 |

### 2.5.4 Heat Loss/Gain Model (EZDOE Method)

General: Entech utilizes an hourly energy use simulation program known as EZDOE. This program is a PC version of the Department of Energy's simulation program known as DOE-2.1D. The program has the capability of calculating hour-by-hour energy use of all aspects of a building. This program will be used to substantiate estimates of connected capacities of HVAC equipment determined during the site investigation. The results will also be used to guide the diversity of the electrical model. Year round cooling and heating loads will be estimated based on the building's usage. Where appropriate, EZDOE will be used to analyze ECOs for determining savings. This section will provide a short overview of the program and its capabilities.

Energy Calculations: EZDOE calculates the annual energy consumption of HVAC systems based on U.S. Department of Energy standards. The program contains four (4) main simulation sections utilized are as follows:

| | |
|---|---|
| 1 | Loads |
| 2 | Systems |
| 3 | Plants |
| 4 | Economics |

Loads: This portion of the program allows the user to construct a database on the building or zone. In the case of Building 2700, the loads will be broken up by zones on each of the floors served by specific system and plant types. Some of the areas of input are listed on the following page:

| | |
|---|---|
| 1 | Exterior and Interior Wall Constructions |
| 2 | Roof Constructions |
| 3 | Window Details, Exterior Door Details |
| 4 | Schedules, Daily, Weekly, and Monthly |
| 5 | Lighting Load |
| 6 | People Occupancy Rates |
| 7 | Space/Area Definition |
| 8 | Miscellaneous Loads Such as DHW Usage |
| 9 | General Equipment Load |
| 10 | City/Weather References |

Systems: This section simulates air distribution systems which can be utilized within a building. Twenty-two different air systems are supported. In general, spaces defined under loads can be attached to systems. The following table lists some features which can be assessed:

| | |
|---|---|
| 1 | Variable Air Volume |
| 2 | Preheating |
| 3 | Night Setback |
| 4 | Economizer |
| 5 | Reheating, Humidification |
| 6 | Baseboard Heating |
| 7 | System Scheduling |

Plants: This section simulates the building's physical plants (boilers, chillers, water heaters, etc.) and various options. The program has the

capability of sizing equipment based on loads or sizes that can be manually entered into the program. A wide variety of equipment can be simulated. The following table lists additional features which can be utilized.

| | |
|---|---|
| 1 | Thermal Storage |
| 2 | Peak Shaving |
| 3 | Demand Limiting |
| 4 | Load Management |

Economics: This portion provides a means to simulate utility tariffs and costs. Fuel consumption during specific time periods can also be generated. The following is a list of features which can be utilized:

| | |
|---|---|
| 1 | Demand Costs |
| 2 | On-Off Peak Usage Costs |
| 3 | Demand Ratchets |
| 4 | Seasonal Rates |

Note: The economics section of the EZDOE modeling will not be used with this report in lieu of the Steam Model and the Electric Model.

### 2.5.5 Electric Model

Entech's electric model is a computer spreadsheet used to identify electric loads within the building and to identify the individual contribution to electrical demand, usage, and cost.

Loads have been identified from site investigations and drawings. Building space lighting loads will be identified in the EZDOE Model. It is important to realize that the electric model is an approximation of the electricity used by each load. It shows general relationships and gives a reasonable allocation of electrical demand, usage, and cost.

Demand (kW) contributions and estimated kWh usages are then included in subsequent calculations of the Energy Conservation Opportunities of Section 6.0.

A sample electric model is shown in Table 2.5.5.1. A description of each column heading follows:

<u>Connected Load:</u> The total connected electric load is expressed in kW.

<u>Winter Demand:</u> The average kW contributing to the billing demand each month. Winter months include December, January, February, and March.

<u>Intermediate Demand:</u> The average contribution to billing demand in the intermediate months of April, May, October, and November.

Summer Demand: The average contribution to billing demand in the summer months of June, July, August, and September.

Winter Usage: The estimated full load equivalent off-peak and on-peak hours that the load operates in a day within the following schedules during the months of December through March. The following table lists the utility billing periods.

| Billing Period | Time of Day | days/mo |
|---|---|---|
| Off-Peak | 8:00 p.m. to 8:00 am<br>24hrs Saturday/Sunday | 30 |
| On-Peak | 8:00 a.m.to 8:00 p.m. | 20 |

The kWh/mo in the next column is then calculated by multiplying (Connect Load) x (Hrs/Day) x (# of days).

Intermediate Usage: Same as winter usage except months are April, May, October, and November.

Summer Usage: Same as winter usage except months are June through September.

Non-Summer and Summer Totals Per Year: The kW/month for each season is multiplied by the appropriate number of mo/season to calculate annual kW for non-summer and summer. The kWh/year is calculated in the same manner as kW. The non-summer and summer costs are calculated by multiplying kW and kWh by the applicable incremental costs.

S

| No. | Description | Total Connected Load (kW) | Winter Demand kW/Month | Inter Demand kW/Month | Summer Demand kW/Month | Winter Billing Months Off-Peak hrs/day | Winter Billing Months Off-Peak kWh/Mo | Winter Billing Months On-Peak hrs/day | Winter Billing Months On-Peak kWh/Mo | Intermed Off-Peak hrs/day | Intermed Off-Peak kWh/ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| 3 | *AIR HANDLER =1* | 2.2 | 1.9 | 1.9 | 1.9 | 10.0 | 660 | 6.0 | 264 | 10.0 | |
| 4 | | | | | | | | | | | |
| 5 | | | | | | | | | | | |
| 6 | | | | | | | | | | | |
| 7 | | | | | | | | | | | |
| 8 | | | | | | | | | | | |
| 9 | | | | | | | | | | | |
| 10 | | | | | | | | | | | |
| 11 | | | | | | | | | | | |
| 12 | | | | | | | | | | | |
| 13 | | | | | | | | | | | |
| 14 | | | | | | | | | | | |
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| 17 | | | | | | | | | | | |
| 18 | | | | | | | | | | | |
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| 20 | | | | | | | | | | | |
| 21 | | | | | | | | | | | |
| 22 | | | | | | | | | | | |
| 23 | | | | | | | | | | | |
| 24 | | | | | | | | | | | |
| 25 | | | | | | | | | | | |
| 26 | | | | | | | | | | | |
| 27 | | | | | | | | | | | |
| 28 | | | | | | | | | | | |
| 29 | | | | | | | | | | | |
| 30 | | | | | | | | | | | |
| 31 | | | | | | | | | | | |
| 32 | | | | | | | | | | | |
| 33 | | | | | | | | | | | |
| 34 | | | | | | | | | | | |
| | TOTALS | 0 | 0 | 0 | 0 | | 0 | | 0 | | |

*Historical Billing Demand Averages*

| | | | | | |
|---|---|---|---|---|---|
| Dec | 0 | Apr | 0 | Jun | 0 |
| Jan | 0 | May | 0 | Jul | 0 |
| Feb | 0 | Oct | 0 | Aug | 0 |
| Mar | 0 | Nov | | Sep | 0 |
| Avg | 0 | | 0 | | 0 |

*Historical Billing On-P*

| | | | |
|---|---|---|---|
| Dec | 0 | Apr | |
| Jan | 0 | May | |
| Feb | 0 | Oct | |
| Mar | 0 | Nov | |
| Avg | 0 | | |

Winter Months: October, November, December, January, February, March, April, May
Summer Months: June, July, August, September

| | Winter | Summer |
|---|---|---|
| Incremental Demand Cost, $/kW | $6.60 | $17.09 |
| Off-Peak Incremental Usage Cost, $/kWh | $0.037 | $0.034 |
| Intermediate Incremental Usage Cost, $/kWh | $0.046 | $0.047 |
| On-Peak Incremental Usage Cost, $/kWh | $0.053 | $0.062 |

**C:\X123W\4130.05\ELECMOD\SMPEMOD.WK4**

| Incremental Costs: | Winter | umme |
|---|---|---|
| Incremental Demand Cost ($/kW): | $8.310000 | ****** |
| On-Peak Incremental Usage Cost ($/kWh): | $0.070180 | ****** |
| Off-Peak Incremental Usage Cost ($/kWh): | $0.060280 | ****** |



1

# Sample Electric Model
## Table 2.5.5.1

| | Summer Demand kW/Month | Winter Billing Months Off-Peak hrs/day | kWh/Mo | On-Peak hrs/day | kWh/Mo | Intermediate Billing Months Off-Peak hrs/day | kWh/Mo | On-Peak hrs/day | kWh/Mo | Summer Billing Months Off-Peak hrs/day | kWh/Mo | On-Peak hrs/day | kWh/Mo | Non-Summer Demand kW/Yr. | Off-Peak KWH/Yr. | On- KW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | 1.9 | 10.0 | 660 | 6.0 | 264 | 10.0 | 660 | 6.0 | 264 | 10.0 | 660 | 6.0 | 264 | 15 | 5,280 | |
| ) | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 0 | 0 | |

| *Averages* | |
|---|---|
| Jun | 0 |
| Jul | 0 |
| Aug | 0 |
| Sep | 0 |
| | 0 |

*Historical Billing On-Peak Averages*

| | | | | | |
|---|---|---|---|---|---|
| Dec | 0 | Apr | 0 | Jun | 0 |
| Jan | 0 | May | 0 | Jul | 0 |
| Feb | 0 | Oct | 0 | Aug | 0 |
| Mar | 0 | Nov | | Sep | 0 |
| Avg | 0 | | 0 | | 0 |

*Historical Billing Off-PeakAverages*

| | | | |
|---|---|---|---|
| Dec | 0 | Apr | 0 |
| Jan | 0 | May | 0 |
| Feb | 0 | Oct | 0 |
| Mar | 0 | Nov | |
| Avg | 0 | | 0 |

April, May



②

## ctric Model
## 2.5.5.1

| ths | Summer Billing Months | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| eak | Off-Peak | | On-Peak | | Non-Summer | | | | Summer | | | | |
| Wh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | Demand kW/Yr. | Off-Peak KWH/Yr. | On-Peak KWH/Yr. | Cost $ | Demand kW/Yr. | Off-Peak KWH/Yr. | On-Peak KWH/Yr. | Cost $ | No. |
| | | | | | | | | | | | | | 1 |
| | | | | | | | | | | | | | 2 |
| 264 | 10.0 | 660 | 6.0 | 264 | 15 | 5,280 | 2,112 | $406 | 7 | 2,640 | 1,056 | $283 | 3 |
| | | | | | | | | | | | | | 4 |
| | | | | | | | | | | | | | 5 |
| | | | | | | | | | | | | | 6 |
| | | | | | | | | | | | | | 7 |
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| | | | | | | | | | | | | | 20 |
| | | | | | | | | | | | | | 21 |
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| | | | | | | | | | | | | | 29 |
| | | | | | | | | | | | | | 30 |
| | | | | | | | | | | | | | 31 |
| | | | | | | | | | | | | | 32 |
| | | | | | | | | | | | | | 33 |
| | | | | | | | | | | | | | 34 |
| 0 | | 0 | | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | |

| |
|---|
| 0 |
| 0 |
| 0 |
| 0 |
| 0 |

*Historical Billing Off-PeakAverages*

| | | | | | |
|---|---|---|---|---|---|
| Dec | 0 | Apr | 0 | Jun | 0 |
| Jan | 0 | May | 0 | Jul | 0 |
| Feb | 0 | Oct | 0 | Aug | 0 |
| Mar | 0 | Nov | | Sep | 0 |
| Avg | 0 | | 0 | | 0 |

13-Sep-95

3

### 2.5.6 mmBtu/Unit

The following energy values have been used in the energy calculations in this report.

**Table 2.5.6.1 mmBtu/Unit**

| Fuel Type | Btu/Unit | mmBtu/Unit | Comment |
|---|---|---|---|
| Natural Gas (mcf) | 1,031,000 | 1.031 | 10.54 Therms |
| #2 Heating Oil (gal) | 138,700 | 0.1387 | |
| 85 psig Steam (lbs) | 1,000 | 0.001 | Heating Energy |
| Electricity (kWh) | 3,413 | 0.003413 | |

## 2.6 Energy Conservation Opportunities (ECOs)

After the energy models have been finalized, Entech proceeds to analyze the ECOs which were developed during the site inspection. An ECO describes an idea for decreasing energy usage or costs, and the format consists of the following sections:

| | |
|---|---|
| 1 | Existing Condition Description |
| 2 | Proposed Condition Description |
| 3 | Capital Cost Estimates |
| 4 | Annual Energy Savings |
| 5 | Recurring Annual Savings |
| 6 | Discussion |

### 2.6.1 Existing Condition

A general description of the existing condition will be provided as well as current annual energy usage and cost.

### 2.6.2 Proposed Condition Description

The project, which is to be implemented, will be described in adequate detail. The expected energy usage and cost for the proposed project will be formulated and shown.

### 2.6.3 Capital Cost Estimates

The capital cost estimates prepared for this study are considered to be "conceptual" in nature. They are conceptual because they are based upon engineering design that is less than one percent of a complete detailed design effort for such a project.

The cost estimates are broken down into material, labor, and engineering components. Calculations or a spreadsheet are usually provided with each ECO.

The final results of a project can vary significantly from the "Conceptual" cost estimate. The American Association of Cost Engineers (AACE) generally states that an accuracy range of plus or minus 20% from the total estimated cost is possible. Variations beyond this range are possible for the stated scope, but not likely.

Since it is not possible for the consultants to know the most likely variations that can occur in the future, nor can they control certain technologies, contractors, or general economic conditions. The costs estimated herein should not be construed as fixed or precise. Rather, they

are estimates which will require a great deal of effort to manage until the final costs are realized.

### 2.6.4 Cost Savings

This division of the ECO compares the existing and proposed energy costs and notes increases or decreases in energy consumption.

### 2.6.5 Discussion

Entech notes the expected simple payback period for the ECO. Any additional benefits or concerns are noted in this section.

### 2.6.6 Life Cycle Cost Analysis Summary

The life cycle costs were forecasted with the Blast: LCCID version FY 1995, Level 92 Program. LCCID, which is short for Life Cycle Cost In Design, is an economic analysis computer program tailored to the needs of the Department of Defense (DoD). It is intended to be used as a tool in evaluation and ranking design alternatives for new and existing buildings. LCCID has built-in calculation procedures recognized as a standard for the DoD. The following is the specific criteria and other guidance embodied in LCCID according to the LCCID users manual.

The specific criteria and other guidance embodied in LCCID are:

1. Office of Management and Budget (OMBP Circular A-94, March 27, 1972. OMB Circular A-94 has a new version (October 29, 1992) but a final decision on incorporating the new circular into tri-service criteria has not been determined.

2. Code of Federal Regulations, 10 CFR 436A, January 25, 1990. Annual fuel escalation rates are published by NIST (National Institute of Standards and Technology) under sanction by DoE.

3. Memorandum of Agreement on Criteria/Standards for Economic Analysis/Life Cycle Costing for MILCON Design, 18 March 1991. This memorandum obviated the need for separate criteria in the three services (Army, Air Force, and Navy) of the Department of Defense.

4. DoD Energy Conservation Investment Program (ECIP) Guidance. This guidance uses the memorandum from Item 3, as its basis, but also has some qualifying factors for energy conservation projects and specifies its own format.

The LCCID Program is structured as shown on Table 2.6.6.1, ECIP Study LCCID Ready Reference, which can be found at the end of this section. This table was obtained from the LCCID program users manual.

The following criteria was selected/entered into the LCCID program to obtain the Life Cycle Cost Analysis Summaries prepared as part of each ECO:

1. Common criteria selected for all life cycle cost analysis summaries:

   — Military Construction Army
   — User Entry of Consumption Values
   — ECIP Project
   — Energy Escalation Rates for FY94 (only option available)
   — English Units

2. Common criteria entered into all life cycle cost analysis summaries:

- — ECIP Economic Life: Twenty years
- — Location: New Jersey
- — Electric Usage Cost: \$21.23 per mmBtu

$$\left( \frac{\$0.07246 \ / \ kWh}{.003413 \ / \ \frac{mmBtu}{kWh}} \right)$$

- — Project Number: #4130.05
- — Fiscal Year: 1995
- — Project Title: EEAP
- — Installation Name: Ft. Monmouth
- — Study Preparer: JED
- — Salvage Value: \$0

3. Criteria entered into life cycle cost analysis summaries from the ECO:

- — Discrete Portion Title: ECO #
- — Construction Cost: Dollars
- — Design Cost: Dollars (Program default of 6% of construction cost rounded off.)
- — Supervision, Inspection, and Overhead (SIOH): Dollars (Program default of 5.5% of construction cost rounded off.)
- — Energy Savings: mmBtu (Electrical, oil, gas, etc.)
- — Demand Savings: Annual Dollars (Electrical only)
- — Annual Recurring Savings: Maintenance Savings

A sample Life Cycle Cost Analysis Summary Report is shown in Table 2.6.6.2 located at the end of this section. In this example, all the common criteria noted in 2, Items A and B, was selected or entered into this summary report.

In Part 1 of the summary report, a Construction Cost of $100,000 and a Design Cost of $6,000 was assumed (rounded in some cases). The SIOH was rounded off to $6,000 by the user versus $5,500 or 5.5%.

In Part 2 of the summary report, an electric energy saving of 5,000 mmBtu/yr at a cost rate of $10/mmBtu was assumed.

In Part 3 of the summary report, a maintenance savings of $0/yr was assigned. In the actual summary report, the above-assumed numbers would originate from an ECO. In the example, the program calculated a simple payback of 2.24 years and a savings to investment ratio of 6.69.

TABLE 2.6.6.1

# ECIP STUDY - LCCID READY REFERENCE

HELP or ? - To [illegible] how the question pertains to LCC and to display hints on allowable answers.
LIST or ? - To DISPLAY a LIST of allowable inputs.
TEACH - To begin seeing all the help messages before entering your response.
SAVE - To save the Study File from any prompt.
ABORT or QUIT - To TERMINATE the program without saving any information since the last SAVE or Auto-save.

**MAIN MENU CHOICES**
S = Select Study Parameters
A = Define / Change Discrete Portions
C = Calculate & Report Life Cycle Costs
N = Select Next Study
D = Change Directory of Study/Report Files
<cr> = exit PROGRAM

S

**SELECT STUDY PARAMETER Choices**
C = Select Criteria for Present Worth Calculations
D = Select Key Study Dates
M = Select Dollar Input Multiplier
E = Select Energy Related Study Inputs
T = Select Study Identification Block
<cr> = exit SELECT STUDY PARAMETERS

D

**SELECT KEY STUDY DATES Choices**
L = Economic Life of Building
<cr> = exit SELECT KEY STUDY DATES

E

**SELECT ENERGY RELATED STUDY INPUT Choices**
S = Select Location (Region for E-Values)
U = Select Energy Input Units
P = Select Energy Prices
<cr> = exit SELECT ENERGY RELATED STUDY INPUT

P

**SELECT ENERGY PRICES Choices**
0 = Initialize All Energy Type Prices
1 = Select Prices of ELECT
2 = Select Prices of DIST
3 = Select Prices of RESID
4 = Select Prices of NAT G
5 = Select Prices of COAL
6 = Select Prices of LPG
7 = Select Prices of SOLAR
8 = Select Prices of GEOTH
9 = Select Prices of BIOMA
10 = Select Prices of REFUS
11 = Select Prices of WIND
12 = Select Prices of OTHER
<cr> exit SELECT ENERGY PRICES

T

**SELECT STUDY IDENTIFICATION BLOCK Choices**
I = Re-enter All Study Identification Block Data
T = Specify Project Title
L = Specify Installation Name
P = Specify Project Number
F = Specify Fiscal Year
A = Specify Name of Analyst
<cr> = exit SELECT STUDY IDENTIFICATION BLOCK

C

**CALCULATE & REPORT LIFE CYCLE COSTS Choices**
I = Generate ECIP Summary Reports
<cr> = exit CALCULATE & REPORT LIFE CYCLE COSTS

A

**DEFINE / CHANGE DISCRETE PORTIONS Choices**
L = List Discrete Portion Titles
S = Define / Change Discrete Portion Values
D = Delete Discrete Portions
R = Resequence Discrete Portion Identifiers
O = Put Discrete Portion Identifiers in Ascending Order
<cr> = exit DEFINE / CHANGE DISCRETE PORTIONS

S

**DEFINE / CHANGE Discrete Portion Values**
V = Specify Construction, SIOH, and Design Costs
E = Specify Energy Usage Savings
S = Specify Salvage Value of Existing Equipment
U = Specify Public Utility Rebate
M = Specify Annually Recurring Savings/Costs
R = Specify Non Recurring Savings/Costs
L = List this Discrete Portion's Identifier and Title
D = Delete this Discrete Portion
<cr> = exit DEFINE / CHANGE Discrete Portion Values

E

**SELECT ENERGY PRICES Choices**
0 = Initialize All Energy Type Prices
1 = Select Prices of ELECT
2 = Select Prices of DIST
3 = Select Prices of RESID
4 = Select Prices of NAT G
5 = Select Prices of COAL
6 = Select Prices of LPG
7 = Select Prices of SOLAR
8 = Select Prices of GEOTH
9 = Select Prices of BIOMA
10 = Select Prices of REFUS
11 = Select Prices of WIND
12 = Select Prices of OTHER
<cr> exit SELECT ENERGY PRICES

V

**INVESTMENT COSTS Choices**
I = Initialize All Investment Costs for this Discrete Portion
C = Specify Construction Cost and Related Information
D = Specify Design Cost and Related Information
O = Specify SIOH Cost and Related Information
<cr> = exit INVESTMENT COSTS

M

**SPECIFY ANNUAL VALUES Choices**
L = List Annual Values by Title
S = Define / Change Annual Values
D = Delete an Annual Value
<cr> = exit SPECIFY ANNUAL VALUES

R

**SPECIFY ONE TIME VALUES Choices**
L = List One time Values by Time
S = Define / Change One time Values
D = Delete an One time Value
<cr> = exit SPECIFY ONE TIME VALUES

## Table 2.6.6.2

```
          LIFE CYCLE COST ANALYSIS SUMMARY                     STUDY: MONMOUTH
      ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)            LCCID  FY95 (92)
INSTALLATION & LOCATION: FT. MONMOUTH-NREGION NOS.  2 CENSUS: 1
PROJECT NO. & TITLE: 4130.06    FT. MONMOUTH
FISCAL YEAR 96     DISCRETE PORTION NAME: EXAMPLE
ANALYSIS DATE:  02-23-96  ECONOMIC LIFE 20 YEARS PREPARED BY: SCOTT BARNDT

1. INVESTMENT
A. CONSTRUCTION COST        $   100000.
B. SIOH                     $     6000.
C. DESIGN COST              $     6000.
D. TOTAL COST (1A+1B+1C)    $   112000.
E. SALVAGE VALUE OF EXISTING EQUIPMENT $       0.
F. PUBLIC UTILITY COMPANY REBATE       $       0.
G. TOTAL INVESTMENT (1D - 1E - 1F)                    $   112000.

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994
             UNIT COST   SAVINGS      ANNUAL $     DISCOUNT    DISCOUNTED
   FUEL      $/MBTU(1)   MBTU/YR(2)   SAVINGS(3)   FACTOR(4)   SAVINGS(5)

   A. ELECT $ 10.00        5000.      $   50000.     14.99     $   749500.
   B. DIST  $    .00          0.      $       0.     18.50     $        0.
   C. RESID $    .00          0.      $       0.     20.90     $        0.
   D. NAT G $    .00          0.      $       0.     18.27     $        0.
   E. COAL  $    .00          0.      $       0.     15.68     $        0.
   F. PPG   $    .00          0.      $       0.     17.35     $        0.
   M. DEMAND SAVINGS                  $       0.     14.88     $        0.
   N. TOTAL                5000.      $   50000.               $   749500.

3. NON ENERGY SAVINGS(+) / COST(-)

  A. ANNUAL RECURRING (+/-)                                    $        0.
     (1) DISCOUNT FACTOR (TABLE A)                   14.88
     (2) DISCOUNTED SAVING/COST (3A X 3A1)                     $        0.

  B. NON RECURRING SAVINGS(+) / COSTS(-)
                               SAVINGS(+)   YR    DISCNT      DISCOUNTED
               ITEM             COST(-)     OC    FACTR       SAVINGS(+)/
                                  (1)       (2)    (3)        COST(-)(4)

   d. TOTAL                    $      0.                          0.

  C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)$        0.

4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))$     50000.

5. SIMPLE PAYBACK PERIOD (1G/4)                                 2.24 YEARS

6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)                       $   749500.

7. SAVINGS TO INVESTMENT RATIO          (SIR)=(6 / 1G)=         6.69
   (IF < 1 PROJECT DOES NOT QUALIFY)

8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):                    13.27 %
```

## 2.7 Draft Report/Client Review/Final Report

After the previous sections have been substantially completed, Entech proceeds to compile the information into the report format. Entech schedules a meeting with the client to present its findings. A copy of the report is supplied to the client for a more detailed review. The client's review process typically lasts 2-3 weeks.

Entech will then proceed to incorporate the clients review comments and produce a final report.

## 3.0 FACILITY DESCRIPTION

### 3.1 General

The Myer Center, Building 2700, is located on the grounds of Fort Monmouth, Eatontown, New Jersey. Building construction was completed in 1955 and encompasses approximately 700,000 gross square foot of floor area on four (4) floor levels, plus a partial basement floor level. Building 2700 was renovated in 1982 under the Major Construction Activities Program (MCA). Renovation costs were in the range of $26,000,000 which encompassed a new building facade, including the addition of building insulation, and a reduction of the exterior glass area. Numerous building HVAC system modifications were incorporated under this renovation program. Building 2700 is utilized for numerous activities and maintains the areas as shown in the table below:

**Table 3.1.1., Building Use**

| | |
|---|---|
| 1 | Electronics Labs |
| 2 | Cleanroom Facilities |
| 3 | Computer Rooms |
| 4 | Conference Rooms |
| 5 | Meeting Rooms |
| 6 | Offices |
| 7 | Cafeteria |
| 8 | Library |
| 9 | Auditorium |
| 10 | Recreation Facilities |

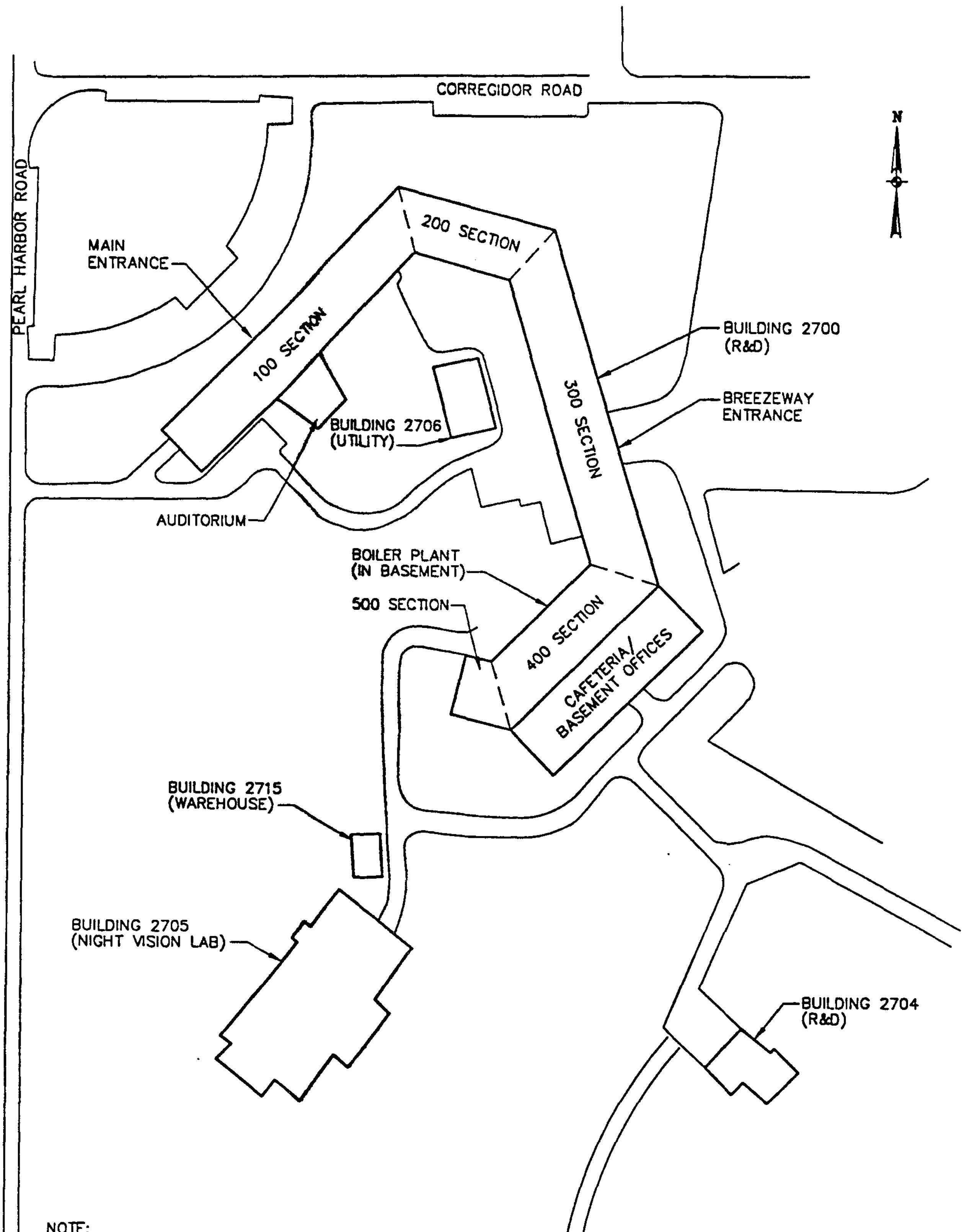
The following information is supplied for some of the main areas of activity in the building.

Library: The library is located on the west side of the 400 block on the first floor level. It is typically open five days a week 0900 to 1700 hours.

Cafeteria: The cafeteria is open for breakfast and lunch five days a week from 0630 to 1330 hours. According to the cafeteria management, approximately 600 meals are prepared daily. The cafeteria is located on the east side of the 400 block on the basement level.

Auditorium: The auditorium is located on the west side of the 100 block on the first floor. The seating capacity is 500 persons and is generally used on a daily basis.

Refer to Figure 3.1.1 on the next page for an overall view of Building 2700 on the Fort Monmouth site. Note the other Buildings 2704, 2705, 2706 and 2715 which are presently connected to the central boiler plant in Building 2700.




NOTE:
THE 100, 200 & 300 SECTIONS HAVE (4) FLOORS.
THE 400 & 500 SECTIONS HAVE (4) FLOORS PLUS THE BASEMENT.

U.S. ARMY ENGINEER DISTRICT, MOBILE/NORFOLK

FORT MONMOUTH NEW JERSEY

LIMITED ENERGY STUDY, EEAP PROGRAM
MYER CENTER, BLDG. 2700 – SITE PLAN

ENTECH Engineering Inc.
4 SOUTH FOURTH STREET P.O. BOX 32 READING, PA 19603 (610) 373-6667
1851 WEST END AVE P.O. BOX 389 POTTSVILLE, PA 17901 (717) 628-5655

| DATE | DRAWN BY | CHECKED BY | PROJ. MGR. | APPROVED |
|---|---|---|---|---|
| 12/28/95 | RJI | JED | ELC | |

| SCALE | PROJECT NO. | DRAWING NO. | REVISION |
|---|---|---|---|
| 1" = 200' | 4130.05 | FIG. 3.1.1 | 0 |

## 3.2 Building Occupancy

Building 2700 is normally staffed five (5) days a week during the hours of 0700 and 1900, though the facility is available to staff members seven (7) days a week, 24 hours per day. The normal building staff is currently comprised of 1,400 persons, future growth is anticipated to be in the range of 1,800 persons. Approximately 100 staff, security, and maintenance personnel are in the building during the hours of 1900 to 0700. During the weekends approximately 100 personnel are expected in the building on average.

## 3.3 Building Structure

Exterior Walls: The original building exterior wall construction is generally two (2) layers of concrete masonry units (CMU) without any form of insulation. During the 1982 MCA project, an insulated panel facade was added to the existing building exterior walls. Present wall thickness ranges between 14 and 20 inches with an average overall thermal wall resistance of 12.21 as shown on the table below:

**Table 3.3.1, Wall Resistance**

| Material/Thickness | Resistance Value |
|---|---:|
| Outdoor Air Film | 0.17 |
| 2" Thick Insulated Building Panel | 8.00 |
| 2" to 8" air space | 0.97 |
| 4" CMU | 0.71 |
| 2" Airspace | 0.97 |
| 4" CMU | 0.71 |
| Indoor Air Film | 0.68 |
| Total Resistance (R) | 12.21 |
| Thermal Transmission (U) | 0.08 |

Roof: In general, the roof construction consists of membrane roofing material over rigid insulation board, placed on top of the existing building roof system. The total roof resistance is calculated to be 9.54 as shown on the following table:

**Table 3.3.2, Roof Resistance**

| Material/Thickness | Resistance Value |
|---|---|
| Outdoor Air Film | 0.17 |
| 2" Rigid Insulation | 8.00 |
| Building Roof Decking | 0.76 |
| Indoor Air Film | 0.61 |
| Total Resistance | 9.54 |
| Thermal Transmission | 0.11 |

Glass: Window area utilizes tinted insulating glass. The thermal transmission U value is 0.55 and the shading coefficient is 0.51.

## 3.4 Mechanical Systems (Building 2700)

Steam: The Building 2700 heating plant consists of three (3) watertube type boilers manufactured by the Keeler Company in 1952. The boilers are located within a mechanical equipment room in the basement level. Each boiler is rated at 427 horsepower and produces steam at 85 psig. One (1) boiler, labeled Boiler #1, is damaged and slated for demolition in the near future, the two (2) remaining boilers are in satisfactory operating condition. Boiler #3 has recently been converted to dual fuel capability, being able to fire on natural gas or No. 2 fuel oil. The natural gas capability came on line in late 1995. Under present contract conditions between the government and the gas utility company, the

natural gas supply to Building 2700 has been established as a non-interruptible type supply source for the next seven (7) years. Boiler #3 will be the primary source of steam, utilizing natural gas as the fuel source. Boiler #2 is capable of firing No. 2 fuel oil only and will be utilized as backup. The original 10 to 20 feet diameter (at roof height) breeching stack constructed of brick and estimated to be near 150 feet high (from ground level) remains active.

**Table 3.4.1, Boiler Schedule**

| Boiler | Fuel | HP | Steam lbs/hr | Comment |
|---|---|---|---|---|
| B-1 | No. 2 Fuel oil | 427 | 14,300 | Damaged, to be demolished |
| B-2 | No. 2 Fuel oil | 427 | 14,300 | Back-up Boiler |
| B-3 | No. 2 Fuel oil/Nat. Gas | 427 | 14,300 | Primary Boiler |

Fuel oil is presently stored in a single 25,000 gallon underground fuel oil storage tank. Four (4) other 25,000 gallon underground storage tanks exist, though are no longer utilized to store fuel oil.

Steam produced by this heating plant is utilized in Buildings 2700 (R&D), 2704 (R&D), 2705 (Night Vision Lab), 2706 (Utility), and 2715 (Warehouse). Primary steam use is for building heating systems, with a small quantity utilized for Cafeteria/Kitchen equipment. Steam is also used as the source of heat for the Building 2700 domestic hot water system, which is currently not operable. Reheat using steam is required with some HVAC equipment where de-humidification controls are used.

Steam is generated at 85 psig and reduced downstream of the main headers to meet the individual system requirements, which are generally 15 psig or less. Condensate is returned to the heating plant by both a gravity return system and individual condensate pump and receiver sets located within the buildings and spaces served.

Condensate is returned to a common surge tank located in the basement Mechanical Equipment Room within Building 2700. Within the surge tank, returned condensate is mixed with treated make-up water and pumped to a deaerator. Make-up water is treated by zeolite type water softening equipment located next to the surge tank. Within the deaerator the mixture of make-up water and condensate return are combined with steam to become heated feedwater. During this mixing cycle, corrosive gasses are removed by the deaerator. The deaerator is a spray type that was manufactured by Stickle in 1955. Feedwater is pumped by one or two of the four (4) pumps connecting the deaerator with the boilers. The four (4) primary condensate transfer pumps are located on the first floor and return condensate from the main risers for the building. Approximately six (6) other small condensate pumps are installed in the plant.

The existing boilers have both continuous and intermittent blowdown systems. A blowdown tank is located outdoors below grade. The tank is vented to atmosphere and drained to the storm water drainage system.

Note: Two (2) dedicated hot water boilers are presently being installed in Building 2706 for supporting the two-pipe (MCA) system in Building 2700.

The associated steam load, for the two-pipe system, will have to be separated in the existing and proposed steam loads to properly analyze the impact on applicable ECOs. Based on preliminary design drawings presented in August of 1995, the following Table 3.4.2, represents the selection for the boilers being installed in Building 2706.

**Table 3.4.2, Boiler Schedule (Future Additions)**

| Boiler | Fuel | MBH | GPM | Comment |
|---|---|---|---|---|
| B-5 | No. 2 Fuel Oil/Nat. Gas | 8,369 | 837 | Installation in Progress |
| B-6 | No. 2 Fuel Oil/Nat. Gas | 8,369 | 837 | Installation in Progress |

<u>Heating, Ventilation and Air Conditioning:</u> The original 1955 building heating systems for Building 2700 were directly supplied by a building central steam distribution system. Building air conditioning units and ventilation units utilized steam for outdoor air preheat and in some instances supply air reheat requirements. Building heating was accomplished using individual perimeter steam convectors installed on each floor level, miscellaneous spaces such as storage, stairs, etc., were heated by steam unit heaters and convectors. The original building air conditioning systems had individual water cooled chillers installed within equipment rooms within close proximity of their associated air handling unit. The associated condenser water cooling towers were located on the building roof.

As stated in Section 2, Entech performed a limited audit of Building 2700 to determine utilization and the associated HVAC equipment installed. Field notes, existing design and facility drawings, and a maintenance equipment list were used as a basis for our findings. The maintenance equipment list is

included in Appendix 8.1. The results of this audit are summarized in Section 3.4.1 and below in some detail as it pertains to each sub-section in Section 3.4. In general, over a million cubic feet of air per minute (cfm) of connected air flow is installed in Building 2700. Of that total, about 6.5% or 65,000 (cfm) is considered outside air. The connected heating and cooling loads for Building 2700 are estimated to be near 10,000 MBH and the 1,800 tons, respectively.

The results of the Building 2700 HVAC equipment audit show that the majority of the twenty-five (25) original steam unit space heaters remain installed. Approximately twenty-one (21) unit heaters (UH) were identified on the basement and first floor levels. Of these about 4 or 5 are presently not operating, but for modeling and analysis purposes they will be assumed to be operating and functional. Of the forty-five (45) original steam fed, supply ventilation (SV) units, approximately ten (10) to fifteen (15) are still installed but are not operating. They are not included in the summary schedules and subsequently not considered in any of the models or analyses. Other than some of the exhaust fans and (1) cooling tower, apparent "dead" or unused equipment are not identified in this report.

Included in the 1982 MCA project was the construction of a new central steam to hot water heating system and a new central chilled water system, located in Building 2706. This system will be referred to throughout the report as either the MCA two-pipe system or as MCA water (MCA-HW and/or MCA-CHW).

Note: With the elimination of the SV units in conjunction with the questionable design concept used in 1982, many areas have been left without adequate

outside air to meet ASHRAE 62-1989. This is especially true for the perimeter areas on the second, third, and fourth floors.

<u>MCA Hot Water Plant:</u> Steam produced by the Building 2700 Boiler Plant is utilized in Building 2706 as the heat source for the central MCA hot water (HW) heating system. Two (2) steam to water heat exchangers, located in Building 2706, produce hot water which in turn is pumped to Building 2700. The heat exchangers are a shell and tube type, manufactured by Old Dominion, The Adamson Company. There are three (3) heating water distribution pumps available to circulate hot water (MCA-HW) from the heat exchangers to Building 2700. As stated previously, installation is in progress for the replacement of the heat exchangers with new hot water boilers. Construction is expected to be completed by the fall of 1996. This system usually operates from October 15 to May 15.

<u>MCA Chilled Water Plant:</u> The central chilled water (MCA-CHW) is produced by two (2) Trane Co. centrifugal water cooled chillers, rated at 690 tons cooling capacity each. Chilled water is circulated by three (3) pumps. Heat rejection for the chillers is accomplished by an induced draft, crossflow style cooling tower, manufactured by Baltimore Aircoil Co., Inc. The cooling tower is a four (4) cell unit located behind Building 2706. This tower has a nominal rating of 1,380 tons. There are three (3) condenser water pumps available for circulating water between the chillers and the cooling tower. This system usually operates from May 15 to October 15.

MCA 2-Pipe System: Alterations to the Building 2700 heating and air conditioning systems made with the 1982 MCA project included the installation of a two-pipe heating/cooling water distribution system. Two (2) independent heating water and chilled water distribution headers are located in Building 2706. Using control valves and hand operated valves, either heating water or chilled water can be distributed to Building 2700 heating/cooling equipment through two (2), two-pipe supply and return piping distribution systems. Control for each loop is by the use of pressure controllers. Bypass valves are located in Building 2706 insuring adequate flow through the chillers and the heat exchangers (new boilers). Two (2) pipe systems are generally sized for chilled water flows and subsequently the system pressures are reduced for the heating season because those flows (gpm) are lower (50%±) by design. One of the two-pipe systems serves equipment located within the north sections of Building 2700, and the other serves the south sections. Original building perimeter steam convectors were replaced with two-pipe heating/cooling fan coil units. Approximately 840 fan coil (FC) units generally satisfy heating and cooling requirements for the perimeter offices located on all floor levels. A few additional FC units are located in other areas. Approximately 2,100 ft of building perimeter is serviced by zoned sections of finned-tube radiation only utilizing the MCA-HW system during the heating season. Thirteen (13) convectors (C), four (4) cabinet unit heaters (CUH) and seven (7) unit heaters (UH), were identified doing the same.

Since 1982, new two-pipe heating/cooling air handling units were added to supplement office air conditioning demands and provide outdoor air ventilation, and in some cases the two-pipe heating/cooling distribution system also

satisfies the heating and air-conditioning equipment requirements for several interior renovated spaces such as electronics labs, computer labs, office space, etc. Renovations since 1982 in other parts of the building have utilized the two-pipe system adding to the original connected capacity. Forty-three (43) air handling units (AHU) were identified using this system. To date, the connected loads and flow for the two-pipe system are 700 tons of cooling requiring about 1,800 gpm of MCA-CHW and over 6,000 MBH of heating requiring about 700 gpm of MCA-HW. With these totals in mind, both systems are capable of handling more load based on the available cooling capacity and the adequacy of the sizing of the new dedicated hot water boilers.

Miscellaneous Cooling System: Numerous renovations over the years have incorporated air and water cooled DX and chilled water cooling equipment to satisfy individual space cooling needs. Of the original twenty-seven (27) air conditioning (AC) units installed only six (6) remain in operation today. Three (3) DX water cooled and three (3) chilled water - water cooled systems constitute the six (6) original units. Specialty areas, such as cleanrooms, have independent dedicated HVAC systems with equipment located on the building roof. Several water chillers have been installed throughout the building to satisfy space and process equipment cooling needs. A mix of air and water cooled condensers exist with these installations. Condenser water for the applicable chilled water and DX cooling equipment is supplied by four (4) towers on the roof. The original installation in 1955 included five (5) towers, however, in recent years Tower #5 was taken off line. Within the last ten (10) years, Towers #1 and #2 were replaced with new fiberglass units. There are

plans to replace Towers #3 and #4 in the near future with the same type and size as specified for Towers #1 and #2.

Three (3) cleanrooms located within the fourth floor level are served by HVAC units located on the building roof. An independent roof mounted air cooled water chiller satisfies the cooling requirements and building steam from the central distribution system satisfies supply air reheat requirements.

One (1) cleanroom, located on the second floor, is served by a self contained HVAC system also located on the building roof. This unit utilizes air cooled DX cooling equipment and a natural gas fired desiccant dehumidification system.

A small cleanroom, also located on the second floor level, incorporates air handling equipment located within close proximity of the cleanroom. An air-cooled water chiller located on the building roof satisfies this unit's cooling requirement, while building steam from the central distribution system is used at the air handler for supply air reheat requirements. Within Building 2700, there are approximately forty-five (45) miscellaneous air handling/air conditioning unit combinations in operation including the original units and the cleanroom units.

Over the years, the increased use of main frames, workstations and personal computers has led to the use of supplemental cooling in computer rooms, offices, labs, etc.. The primary method of achieving this has been to use specialized air recirculation units capable of removing large sensible cooling

loads from these spaces. These are commonly referred to as "Liebert units". Based on maintenance records and the field auditing process, Entech was able to identify forty-three (43) computer room type recirculation units.

Humidification Control: Areas within the building which require minimum humidity levels be maintained utilize local electronic type humidification equipment. No building steam is used for building space humidification. In some cases the original steam units are installed but as stated they are not in operation, and their function has been replaced by electronic devices, or the units have been deemed unnecessary.

Building 2700 Exhaust: The original 1955 building design incorporated 130 exhaust system fans installed in the building. These exhaust systems were intended to ventilate basic building spaces, such as toilet rooms and equipment rooms, and specialized building spaces such as laboratories. Today there are approximately 80 exhaust fans and scrubbers physically installed in Building 2700 with the majority being located on the roof. Approximately 50 of the original exhaust fans remain in place today. Individual space use within the building is in constant fluctuation, consequently, exhaust requirements change and exhaust fans are added and deleted. Many of the exhaust fans presently installed are not operable, and it is possible that in some instances exhaust fans which remain operable may in fact not be necessary. The connected exhaust flow from Building 2700 is estimated to be about 180,000 cfm. The relationship between connected exhaust to outdoor make-up air is about 3 to 1 or 180,000 cfm to 65,000 cfm. The building pressure in reference to the outdoors is noticeably negative when entering the first floor. Automatic doors

at the entrances have been turned off indicating a high pressure differential. These building conditions suggest that the fans are not capable of exhausting the air quantities originally specified. Discussions about this relationship will occur later in Section 5.4.3 on pages 5-33 through 5-35.

### 3.4.1 Equipment Schedules for Building 2700 HVAC Systems

The following schedules have been provided to summarize the HVAC equipment utilized by Building 2700. They include a summary Table 3.4.1.1 for heating and cooling equipment for the basement, first and mezzanine floors. Table 3.4.1.2 summarizes the equipment utilized by the second, third and fourth floors. The list was generated by defining the air side equipment on each floor. The tabled information includes the flows with the corresponding fan horsepowers, the heating load and source, the cooling load and source documenting related equipment requirements, and the location of the equipment and it's corresponding area served.

Table 3.4.1.3 documents the two large chillers in Building 2706. Table 3.4.1.4 tabulates the Cooling Tower data for the two buildings, and Table 3.4.1.5 does the same for Primary Pumps utilized for the two buildings which are not included as dedicated system pumps in the large summaries, Tables 3.4.1.1 and 3.4.1.2.

The exhaust fans and scrubbers installed in Building 2700 are documented in Table 3.4.1.6. The last summary Table 3.4.1.7, documents the process cooling and building support equipment not

identified in the others that utilize steam, electricity and in some cases, condenser water. The complete list of equipment schedules is shown below and the tables in the following pages.

| | | |
|---|---|---|
| Table 3.4.1.1 | Building 2700 | HVAC Equipment Summary (Basement, First floor and Mezzanine) |
| Table 3.4.1.2 | Building 2700 | HVAC Equipment Summary (Second, Third and Fourth floors) |
| Table 3.4.1.3 | Building 2706 | Chiller Schedule |
| Table 3.4.1.4 | Building 2700/2706 | Cooling Towers |
| Table 3.4.1.5 | Building 2700 | Primary Pump Summary |
| Table 3.4.1.6 | Building 2700 | Exhaust Summary |
| Table 3.4.1.7 | Building 2700 | Misc. Process Cooling & Support System Equipment |

| HVAC Item | Design/Site Designation | Equip. Type | Field Data/Reference/(Location) | Area Served | Flowrate (cfm) | OA (cfm) | TSP (in w g) | Supp.Fan (hp) | RA/OA (hp) | Heating (MBH) | Re-Heat (MBH) | Steam (lb/hr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | HVAC Airside Equipment - General Information | | | | Est. Airside/Fan Data (Evap. Fan) | | | | | Est. Heating Load | | Heating Type |
| 1 | - | AHU | McQuay LML(OA418 - JCALS) | Cafeteria | 21,300 | 2,130 | 3 | 20 | | 492 | 0 | 492 |
| 2 | - | AC | Carrier 38(Cafeteria - above ceiling) | Cafeteria office | 1,600 | 0 | 2 | 1 | | 0 | 0 | |
| 3 | - | AC | Carrier 38(Cafeteria - above ceiling) | Cafeteria office | 1,600 | 0 | 2 | 1 | | 0 | 0 | |
| 4 | - | AHU | unknown(OA400) | OA400 (J-CALS) | 21,300 | 2,130 | 3 | 20 | | 492 | 0 | 492 |
| 5 | - | AHU | unknown(Mech Room (MR)-OA-1) | OA415 offices | 3,000 | 450 | 2 | 2 | | 59 | 0 | |
| 6 | - | Recirc AC | Liebert(OA-413) | OA413 | 4,650 | 0 | 1 | 1.5 | | 0 | 0 | |
| 7 | - | Recirc AC | Liebert(OA-334) | OA334 | 8,400 | 0 | 1.5 | 3 | | 0 | 0 | |
| 8 | - | Recirc AC | Liebert(OA-336) | OA336 | 4,650 | 0 | 1 | 1.5 | | 0 | 0 | |
| 9 | AHU-B-3 | AHU-MCA | Trane C C (OA403) | OA403 offices | 1,970 | 0 | 1.3 | 1 | 0.75 | 16 | 0 | |
| 10 | - | AHU-MCA | unknown(OA418 - JCALS offices) | OA418 (J-CALS) | 1,800 | 0 | 2 | 1 | | 10 | 0 | |
| 11 | - | AHU-MCA | unknown(OA418 - JCALS offices) | OA418 (J-CALS) | 1,800 | 0 | 2 | 1 | | 10 | 0 | |
| 12 | - | AHU-MCA | unknown(OA418 - JCALS offices) | OA418 (J-CALS) | 1,800 | 0 | 2 | 1 | | 10 | 0 | |
| 13 | - | AHU-MCA | unknown(OA418 - JCALS offices) | OA418 (J-CALS) | 1,800 | 0 | 2 | 1 | | 10 | 0 | |
| 14 | - | AHU-MCA | unknown(OA418 - JCALS offices) | OA418 (J-CALS) | 1,800 | 0 | 2 | 1 | | 10 | 0 | |
| 15 | - | UH | unknown(OA501-storage) | OA501 | 320 | 0 | 0.5 | 0.04 | | 20 | 0 | 20 |
| 16 | - | UH | unknown(OA503-storage) | OA503 | 320 | 0 | 0.5 | 0.04 | | 20 | 0 | 20 |
| 17 | - | UH | unknown(OA321-hallway) | OA321 | 320 | 0 | 0.5 | 0.04 | | 20 | 0 | 20 |
| 18 | - | UH | unknown(OA326-Substations #2 & 6) | OA326 | 320 | 0 | 0.5 | 0.04 | | 20 | 0 | 20 |
| 19 | - | UH | unknown(OA328-Substations #2 & 6) | OA328 | 320 | 0 | 0.5 | 0.04 | | 20 | 0 | 20 |
| 20 | FC-1(9) | FC | unknown(9 on West wall) | OA400 Area - West | 1,800 | 0 | 0.5 | 0.15 | | 27 | 0 | |
| 21 | C-4 | Convector | unknown(Near Elevator #1 - Basement) | Hallway - Elev #1 | 0 | 0 | 0 | 0 | | 14 | 0 | |
| 22 | - | Fin-tube | unknown(625 ft of East/South wall) | JCALS/Cafeteria/Lab | 0 | 0 | 0 | 0 | | 469 | 0 | |
| 23 | - | AHU | unknown(1B110 Comp Lab Mezz ) | B110,112/Mezz | 889 | 89 | 2 | 1 | | 10 | 0 | |
| 24 | - | AHU | Atmostech(1B120 Cleanroom) | 1B120 Cleanroom | 20,000 | 0 | 4 | 25 | | 0 | 0 | |
| 25 | - | AHU | McQuay VSC(1B134 Print Shop) | 1B134 Print Shop | 21,300 | 0 | 3 | 20 | | 0 | 0 | |
| 26 | - | AHU | unknown(1B115) | 1B115 office/storage | 3600 | 540 | 3 | 3 | | 40 | 0 | 40 |
| 27 | - | AHU | unknown(1B115 - backup unit) | 1B115 office/storage | - | - | - | - | - | - | - | - |
| 28 | - | AHU | Trane BWV180(1B131 Computer Rm ) | 1B131/Mezz | 5,720 | 0 | 2 | 3 | | 0 | 0 | |
| 29 | - | AHU | Trane BWE120(1B131 Computer Rm ) | 1B131/Mezz | 2,542 | 0 | 3 | 2 | | 0 | 0 | |
| 30 | - | AHU | Trane BTE120(1B131 Computer Rm ) | 1B131/Mezz | 2,860 | 0 | 2 | 1.5 | | 0 | 0 | |
| 31 | - | AHU | Trane BTE120(1B131 Computer Rm ) | 1B131/Mezz | 2,860 | 0 | 2 | 1.5 | | 0 | 0 | |
| 32 | - | AHU | Trane BWE090(1B131 Computer Rm ) | 1B131/Mezz | 1,900 | 0 | 1.5 | 1 | | 0 | 0 | |
| 33 | AC-6 | AHU | Carrier(MR - 1B123) | 1B123 | 800 | 0 | 1.3 | 0.3 | | 0 | 0 | |
| 34 | - | AHU | Comfort Air(1B138) | 1B138 Offices | 3,810 | 571 | 2 | 2 | | 42 | 0 | 42 |
| 35 | AC-1(New) | AHU | Dunham Bush(1B142) | 1B142 | 8,700 | 1,305 | 2.6 | 7.5 | | 96 | 0 | 96 |
| 36 | - | AHU | Chrysler 1005(1B141A) | 1B141A | 1,905 | 286 | 2 | 1 | | 21 | 0 | 21 |
| 37 | - | UH | unknown(Stairway #1) | Stairway #1 | 250 | 0 | 0.5 | 0.04 | | 15 | 0 | 15 |
| 38 | - | UH | unknown(1B107 - storage) | 1B107 | 640 | 0 | 0.5 | 0.1 | | 40 | 0 | 40 |
| 39 | - | UH | unknown(1B109 - storage) | 1B109 | 640 | 0 | 0.5 | 0.1 | | 40 | 0 | 40 |
| 40 | - | UH | unknown(1B111- storage) | 1B111 | 640 | 0 | 0.5 | 0.1 | | 40 | 0 | 40 |
| 41 | - | UH | unknown (1B109 - storage) | 1B107 | 250 | 0 | 0.5 | 0.04 | | 15 | 0 | 15 |
| 42 | - | UH | unknown (1B110 - shop) | 1B110 | 500 | 0 | 0.5 | 0.1 | | 30 | 0 | 30 |
| 43 | - | UH | unknown(Stairway #3) | Stairway #3 | 250 | 0 | 0.5 | 0.04 | | 15 | 0 | 15 |
| 44 | C-4 | Convector | unknown(Near Elevator #1 - First floor) | Hallway - Elev #1 | 0 | 0 | 0 | 0 | | 14 | 0 | |
| 45 | C-2(2) | Convector | unknown(1B4L ladies room) | 1B4L | 0 | 0 | 0 | 0 | | 11.8 | 0 | |
| 46 | - | Fin-tube | unknown(420 ft of 1B100 Area)) | Various | 0 | 0 | 0 | 0 | | 315 | 0 | |
| 47 | - | AHU | Carrier 50(1B202 - Photography) | 1B202 | 1,905 | 286 | 2 | 1 | | 21 | 0 | 21 |
| 48 | - | AHU | Trane SAHB(1B205 - EMS Room) | 1B205 | 2,286 | 343 | 2 | 1 | | 25 | 0 | 25 |
| 49 | AHU-2 | AHU-MCA | Trane C C.(1B204) | 1B204 | 1,620 | 0 | 2.0 | 1.5 | 0.5 | 36 | 0 | |
| 50 | - | AHU | Chrysler 1005(1B212) | 1B212 | 1,905 | 286 | 2 | 1 | | 21 | 0 | 21 |
| 51 | - | UH | unknown (1B212 - shop) | 1B212 | 500 | 0 | 0.5 | 0.1 | | 30 | 0 | 30 |
| 52 | - | Fin-tube | unknown(200 ft of 1B200 Area)) | Various | 0 | 0 | 0 | 0 | | 150 | 0 | |
| 53 | - | AHU-MCA | Carrier 39(1B302 - offices) | 1B302 | 1,905 | 0 | 2 | 1 | | 10 | 0 | |
| 54 | - | AHU-MCA | Carrier 39(1B302 - offices) | 1B302 | 2,667 | 0 | 2 | 2 | | 15 | 0 | |
| 55 | - | AHU-MCA | Carrier 39(1B306 - offices) | 1B306 | 2,667 | 0 | 2 | 2 | | 15 | 0 | |
| 56 | - | AHU-MCA | Carrier 39(1B306 - offices) | 1B306 | 2,667 | 0 | 2 | 2 | | 15 | 0 | |
| 57 | AHU-3 | AHU-MCA | Trane C C (1B322) | 1B318,1B324, Entrance | 4,210 | 0 | 2 | 1.5 | 1.5 | 26 | 0 | |
| 58 | - | AHU-MCA | McQuay(1B332 - offices) | 1B332 | 2,600 | 0 | 2 | 1.5 | | 14 | 0 | |
| 59 | - | AHU-MCA | McQuay(1B332 - offices) | 1B332 | 2,600 | 0 | 2 | 1.5 | | 14 | 0 | |
| 60 | - | UH | unknown(Stairway #4) | Stairway #4 | 200 | 0 | 0.5 | 0.03 | | 10 | 0 | 10 |
| 61 | - | UH | unknown(1B307)) | 1B307 | 1,000 | 0 | 0.5 | 0.15 | | 66 | 0 | 66 |
| 62 | UH-21 | UH | unknown(hallway near 1B322) | hallway | 320 | 0 | 0.5 | 0.05 | | 20 | 0 | 20 |
| 63 | - | UH | unknown(1B321 Receiving) | 1B321 | 1,300 | 0 | 0.5 | 0.20 | | 84 | 0 | 84 |
| 64 | - | UH | unknown(1B321 Receiving) | 1B321 | 1,300 | 0 | 0.5 | 0.20 | | 84 | 0 | 84 |
| 65 | - | Recirc AC | unknown(1B322- above ceiling) | 1B324 | 9,000 | 0 | 2 | 5 | | 0 | 0 | |
| 66 | UH-23 | UH | unknown(Stairway #6) | Stairway #6 | 200 | 0 | 0.5 | 0.03 | | 10 | 0 | 10 |
| 67 | UH-1to7(New) | (7)UH-MCA | unknown((6) Bldg 2706 & (1)Nit Stor Area) | Bldg 2706 & Nitrogen Storage Area | 4,793 | 0 | 0.5 | 0.43 | | 182 | 0 | |
| 68 | C-3 | Convector | unknown(1B6L ladies room) | 1B6L | 0 | 0 | 0 | 0 | | 4.3 | 0 | |
| 69 | C-2 | Convector | unknown(1B6G gentlemen room) | 1B7G | 0 | 0 | 0 | 0 | | 5.9 | 0 | |
| 70 | FC-1(11) | FC | unknown(11 in 1B300 Area) | various | 2,200 | 0 | 0.5 | 0.18 | | 33 | 0 | |
| 71 | - | Fin-tube | unknown(320 ft of 1B300 Area) | various | 0 | 0 | 0 | 0 | | 240 | 0 | |
| 72 | CUH-1(2) | CUH | unknown(New Entrance Area) | entrance way | 400 | 0 | 0 | 0.03 | | 37 | 0 | |
| 73 | - | AHU-MCA | Carrier 39(1B401 - offices) | 1B401 | 2,667 | 0 | 2 | 2 | | 15 | 0 | |
| 74 | AHU-4 | AHU-MCA | Trane C C (1B405 - Library) | Library | 3,100 | 1,178 | 2.0 | 2 | 0.75 | 26 | 0 | |
| 75 | - | AHU-MCA | Trane(above 1B416 - offices) | 1B416 area | 7,425 | 0 | 3 | 7.5 | | 41 | 0 | |
| 76 | - | AHU-MCA | Trane(above 1B416 - offices) | 1B500 area | 7,425 | 0 | 3 | 7.5 | | 41 | 0 | |
| 77 | - | Recirc AC | Liebert(OA-413) | OA413 | 4,650 | 0 | 1 | 1.5 | | 0 | 0 | |
| 78 | - | Recirc AC | Liebert(OA-413) | OA413 | 4,650 | 0 | 1 | 1.5 | | 0 | 0 | |
| 79 | - | UH | unknown(Stairway #7) | Stairway #7 | 320 | 0 | 0.5 | 0.05 | | 15 | 0 | 15 |
| 80 | - | UH | unknown(Stairway #11) | Stairway #11 | 200 | 0 | 0.5 | 0.03 | | 10 | 0 | 10 |
| 81 | C-4 | Convector | unknown(Near Elevator #7 - First floor) | Hallway - Elev #7 | 0 | 0 | 0 | 0 | | 14 | 0 | |
| 82 | FC-1(11) | FC | unknown(1B405 - Library)) | Library | 2,200 | 0 | 0.5 | 0.18 | | 33 | 0 | |
| 83 | - | Fin-tube | unknown(360 ft of 1B400 & 500 Areas) | various | 0 | 0 | 0 | 0 | | 270 | 0 | |
| 84 | - | AHU | Trane(above 1B109 - Computer Area) | Mezz Computer Area | 7,425 | 0 | 2 | 5 | | 41 | 0 | |
| 85 | - | Recirc AC | Liebert(above 1B109 - Computer Area) | Mezz Computer Area | 4,650 | 0 | 1 | 1.5 | | 0 | 0 | |
| 86 | CUH-1(2) | CUH | unknown(Main Lobby Entrance Area) | Mezz entrance way | 400 | 0 | 0 | 0.03 | | 37 | 0 | |
| 87 | AHU-1 | AHU-MCA | unknown(above Main Lobby) | Mezz Lobby Area | 4,150 | 1,620 | 1.8 | 3 | 1.5 | 118 | 0 | |
| 88 | - | AHU-MCA | unknown(1B120 on floor) | Build Mgr office/Mezz | 800 | 0 | 1.3 | 0.3 | | 4 | 0 | |
| 89 | - | AHU | McQuay LSL(Auditorium M-Area) | Auditorium | 7,700 | 1,540 | 3 | 7.5 | | 110 | 0 | 110 |
| 90 | - | AHU | McQuay LSL(Auditorium M-Area) | Auditorium | 7,700 | 1,540 | 3 | 7.5 | | 110 | 0 | 110 |
| 91 | AC-1 | AHU | unknown(MR - 1aB138/Mezz ) | 1aB138 Mezz Area | 8,165 | 1,650 | 2 | 5 | | 132 | 0 | 132 |
| 92 | FC-1(5) | FC | unknown(1aB324/Mezz ) | 1aB138 Mezz Area | 1,000 | 0 | 0.5 | 0.10 | | 15 | 0 | |
| 93 | - | Fin-tube | unknown(250 ft of 1aB100 Areas) | 1aB100 Mezz Area | 0 | 0 | 0 | 0 | | 188 | 0 | |
| | | ~ | | Basement, First & Mezzanine | 283,797 | 15,943 | N/A | 198 | 5 | 4,852 | 0 | 2,225 |

G:\4130.86\SS\ELECMOD\HVACLST3.WK4

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 HVAC SUMMARY (BASEMENT, FIRST FLOOR & MEZZANINE)

TABLE 3.4.1.1

| | Est. Airside/Fan Data (Evap. Fan) | | | | | Est. Heating Load | | Heating Type (Est. Flows/KW) | | | Est. Cooling Load/Compressor | | | | Cooling Type (Est. Cond. Flows/hp) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Area Served | Flowrate (cfm) | OA (cfm) | TSP (in w.g.) | Supp.Fan (hp) | RA/OA (hp) | Heating (MBH) | Re-Heat (MBH) | Steam (lb/hr) | MCA-HW (gpm) | Electric (Kw) | Total (MBH) | Total (Tons) | Comp (hp) | Rating (kW/ton) | CHW Water(gpm) | CHW Water(hp) | Cond Water(gpm) | Cond Water(hp) | CHW Air(hp) | DX-Cond. Water(gpm) | D W |
| eteria | 21,300 | 2,130 | 3 | 20 | | 492 | 0 | 492 | | | 360 | 30 | 40 | 0.99 | | | | | | | |
| etena office | 1,600 | 0 | 2 | 1 | | 0 | 0 | | | | 36 | 3 | 5 | 1.24 | | | | | | | |
| etena office | 1,600 | 0 | 2 | 1 | | 0 | 0 | | | | 36 | 3 | 5 | 1.24 | | | | | | | |
| 00 (J-CALS) | 21,300 | 2,130 | 3 | 20 | | 492 | 0 | 492 | | | 360 | 30 | 40 | 0.99 | | | | | | | |
| 15 offices | 3,000 | 450 | 2 | 2 | | 59 | 0 | | 6 | | 60 | 5 | 7.5 | 1.12 | | | | | | — | |
| 13 | 4,650 | 0 | 1 | 1.5 | | 0 | 0 | | | | 84 | 7 | 10 | 1.07 | | | | | | Drycooler | |
| 34 | 8,400 | 0 | 1.5 | 3 | | 0 | 0 | | | | 156 | 13 | 20 | 1.15 | | | | | | Drycooler | |
| 35 | 4,650 | 0 | 1 | 1.5 | | 0 | 0 | | | | 84 | 7 | 7.5 | 0.80 | | | | | | Drycooler | |
| 03 offices | 1,970 | 0 | 1.3 | 1 | 0.75 | 18 | 0 | | 2 | | 18 | 1.5 | 2 | 0.78 | | | | | | | |
| 18 (J-CALS) | 1,800 | 0 | 2 | 1 | | 10 | 0 | | 1 | | 36 | 3 | 3 | 0.78 | | | | | | | |
| 18 (J-CALS) | 1,800 | 0 | 2 | 1 | | 10 | 0 | | 1 | | 36 | 3 | 3 | 0.78 | | | | | | | |
| 18 (J-CALS) | 1,800 | 0 | 2 | 1 | | 10 | 0 | | 1 | | 36 | 3 | 3 | 0.78 | | | | | | | |
| 18 (J-CALS) | 1,800 | 0 | 2 | 1 | | 10 | 0 | | 1 | | 36 | 3 | 3 | 0.78 | | | | | | | |
| 18 (J-CALS) | 1,800 | 0 | 2 | 1 | | 10 | 0 | | 1 | | 36 | 3 | 3 | 0.78 | | | | | | | |
| 18 (J-CALS) | 1,800 | 0 | 2 | 1 | | 10 | 0 | | 1 | | 36 | 3 | 3 | 0.78 | | | | | | | |
| 01 | 320 | 0 | 0.5 | 0.04 | | 20 | 0 | 20 | | | 0 | | | | | | | | | | |
| 03 | 320 | 0 | 0.5 | 0.04 | | 20 | 0 | 20 | | | 0 | | | | | | | | | | |
| 21 | 320 | 0 | 0.5 | 0.04 | | 20 | 0 | 20 | | | 0 | | | | | | | | | | |
| 26 | 320 | 0 | 0.5 | 0.04 | | 20 | 0 | 20 | | | 0 | | | | | | | | | | |
| 28 | 320 | 0 | 0.5 | 0.04 | | 20 | 0 | 20 | | | 0 | | | | | | | | | | |
| 00 Area - West | 1,800 | 0 | 0.5 | 0.15 | | 27 | 0 | | 3 | | 45 | 3.8 | 4 | 0.78 | | | | | | | |
| vay - Elev #1 | 0 | 0 | 0 | 0 | | 14 | 0 | | 2 | | 0 | | | | | | | | | | |
| S/Cafeteria/Lab | 0 | 0 | [illegible] | 0 | | [illegible] | 0 | | 47 | | 0 | | | | | | | | | | |
| 112/Mezz | 889 | 89 | 2 | 1 | | 10 | 0 | | | 3 | 24 | 2 | 3 | 1.12 | | | | | | | |
| 0 Cleanroom | 20,000 | 0 | 4 | 25 | | 0 | 0 | | | | 179 | 15 | 20 | 1.00 | | | | | | 45 | |
| 4 Print Shop | 21,300 | 0 | 3 | 20 | | 0 | 0 | | | | 360 | 30 | 40 | 0.99 | | | | | | 90 | |
| 5 office/storage | 3600 | 540 | 3 | 3 | | 40 | 0 | 40 | | | 65 | 5 | 7.5 | 1.12 | | | | | | | |
| 15 office/storage | - | - | - | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | |
| 1/Mezz | 5,720 | 0 | 2 | 3 | | 0 | 0 | | | | 129 | 10.0 | 14 | 1.04 | | | | | | | |
| 1/Mezz | 2,542 | 0 | 3 | 2 | | 0 | 0 | | | | 57 | 5.0 | 7.5 | 1.12 | | | | | | | |
| 1/Mezz | 2,860 | 0 | 2 | 1.5 | | 0 | 0 | | | | 45 | 3.5 | 5 | 1.04 | | | | | | | |
| 1/Mezz | 2,860 | 0 | 2 | 1.5 | | 0 | 0 | | | | 45 | 3.5 | 5 | 1.04 | | | | | | | |
| 1/Mezz | 1,900 | 0 | 1.5 | 1 | | 0 | 0 | | | | 30 | 2.0 | 3 | 1.04 | | | | | | | |
| 3 | 800 | 0 | 1.3 | 0.3 | | 0 | 0 | | | | 42 | 3.5 | 5 | 1.04 | | | | | | 11 | |
| 8 Offices | 3,810 | 571 | 2 | 2 | | 42 | 0 | 42 | | | 120 | 10 | 15 | 1.12 | | | | | | | |
| 2 | 8,700 | 1,305 | 2.6 | 7.5 | | 96 | 0 | 96 | | | 180 | 15 | 20 | 0.99 | | | | | | 45 | |
| 1A | 1,905 | 286 | 2 | 1 | | 21 | 0 | 21 | | | 60 | 5 | 7.5 | 1.12 | | | | | | 15 | |
| way #1 | 250 | 0 | 0.5 | 0.04 | | 15 | 0 | 15 | | | 0 | | | | | | | | | | |
| | 640 | 0 | 0.5 | 0.1 | | 40 | 0 | 40 | | | 0 | | | | | | | | | | |
| 9 | 640 | 0 | 0.5 | 0.1 | | 40 | 0 | 40 | | | 0 | | | | | | | | | | |
| 1 | 640 | 0 | 0.5 | 0.1 | | 40 | 0 | 40 | | | 0 | | | | | | | | | | |
| 7 | 250 | 0 | 0.5 | 0.04 | | 15 | 0 | 15 | | | 0 | | | | | | | | | | |
| 0 | 500 | 0 | 0.5 | 0.1 | | 30 | 0 | 30 | | | 0 | | | | | | | | | | |
| way #3 | 250 | 0 | 0.5 | 0.04 | | 15 | 0 | 15 | | | 0 | | | | | | | | | | |
| ay - Elev #1 | 0 | 0 | 0 | 0 | | 14 | 0 | | 2 | | 0 | | | | | | | | | | |
| | 0 | 0 | 0 | 0 | | 11.8 | 0 | | 2 | | 0 | | | | | | | | | | |
| us | 0 | 0 | 0 | 0 | | 315 | 0 | | 32 | | 0 | | | | | | | | | | |
| 2 | 1,905 | 286 | 2 | 1 | | 21 | 0 | 21 | | | 60 | 5 | 7.5 | 1.12 | | | | | | 0 | |
| 5 | 2,286 | 343 | 2 | 1 | | 25 | 0 | 25 | | | 72 | 6 | 7.5 | 0.93 | | | | | | 0 | |
| 4 | 1,620 | 0 | 2.0 | 1.5 | 0.5 | 36 | 0 | | 3.7 | | 63 | 5.3 | 5 | 0.78 | | | | | | | |
| 2 | 1,905 | 286 | 2 | 1 | | 21 | 0 | 21 | | | 60 | 5 | 7.5 | 1.12 | | | | | | 15 | 1 |
| 2 | 500 | 0 | 0.5 | 0.1 | | 30 | 0 | 30 | | | 0 | | | | | | | | | | |
| us | 0 | 0 | 0 | 0 | | 150 | 0 | | 15 | | 0 | | | | | | | | | | |
| 2 | 1,905 | 0 | 2 | 1 | | 10 | 0 | | 1 | | 60 | 5 | 5 | 0.78 | | | | | | | |
| 2 | 2,667 | 0 | 2 | 2 | | 15 | 0 | | 1 | | 60 | 5 | 5 | 0.78 | | | | | | | |
| 5 | 2,667 | 0 | 2 | 2 | | 15 | 0 | | 1 | | 60 | 5 | 5 | 0.78 | | | | | | | |
| | 2,667 | 0 | 2 | 2 | | 15 | 0 | | 1 | | 60 | 5 | 5 | 0.78 | | | | | | | |
| 8,1B324, Entrance | 4,210 | 0 | 2 | 1.5 | 1.5 | 26 | 0 | | 2.5 | | 114 | 9.5 | 10 | 0.78 | | | | | | | |
| 2 | 2,600 | 0 | 2 | 1.5 | | 14 | 0 | | 1 | | 60 | 5 | 5 | 0.78 | | | | | | | |
| 2 | 2,600 | 0 | 2 | 1.5 | | 14 | 0 | | 1 | | 60 | 5 | 5 | 0.78 | | | | | | | |
| way #4 | 200 | 0 | 0.5 | 0.03 | | 10 | 0 | 10 | | | 0 | | | | | | | | | | |
| 7 | 1,000 | 0 | 0.5 | 0.15 | | 66 | 0 | 66 | | | 0 | | | | | | | | | | |
| ay | 320 | 0 | 0.5 | 0.05 | | 20 | 0 | 20 | | | 0 | | | | | | | | | | |
| 1 | 1,300 | 0 | 0.5 | 0.20 | | 84 | 0 | 84 | | | 0 | | | | | | | | | | |
| 1 | 1,300 | 0 | 0.5 | 0.20 | | 84 | 0 | 84 | | | 0 | | | | | | | | | | |
| 4 | 9,000 | 0 | 2 | 5 | | 0 | 0 | | | | 180 | 15 | 16 | 0.78 | | | | | | 45 | To |
| way #6 | 200 | 0 | 0.5 | 0.03 | | 10 | 0 | 10 | | | 0 | | | | | | | | | | |
| 2706 & Nitrogen Storage Area | 4,793 | 0 | 0.5 | 0.43 | | 182 | 0 | | 19 | | 0 | | | | | | | | | | |
| | 0 | 0 | 0 | 0 | | 4.3 | 0 | | 1 | | 0 | | | | | | | | | | |
| | 0 | 0 | 0 | 0 | | 5.9 | 0 | | 1 | | 0 | | | | | | | | | | |
| s | 2,200 | 0 | 0.5 | 0.16 | | 33 | 0 | | 3 | | 55 | 4.6 | 5 | 0.78 | | | | | | | |
| s | 0 | 0 | 0 | 0 | | 240 | 0 | | 24 | | 0 | | | | | | | | | | |
| ce way | 400 | 0 | 0 | 0.03 | | 37 | 0 | | 4 | | 0 | | | | | | | | | | |
| | 2,667 | 0 | 2 | 2 | | 15 | 0 | | 1 | | 60 | 5 | 5 | 0.78 | | | | | | | |
| y | 3,100 | 1,178 | 2.0 | 2 | 0.75 | 26 | 0 | | 2.5 | | 114 | 9.5 | 10 | 0.78 | | | | | | | |
| area | 7,425 | 0 | 3 | 7.5 | | 41 | 0 | | 4 | | 168 | 14 | 15 | 0.78 | | | | | | | |
| area | 7,425 | 0 | 3 | 7.5 | | 41 | 0 | | 4 | | 168 | 14 | 15 | 0.78 | | | | | | | |
| 3 | 4,650 | 0 | 1 | 1.5 | | 0 | 0 | | | | 60 | 5 | 7.5 | 1.12 | | | | | | Drycooler | |
| 3 | 4,650 | 0 | 1 | 1.5 | | 0 | 0 | | | | 60 | 5 | 7.5 | 1.12 | | | | | | Drycooler | |
| way #7 | 320 | 0 | 0.5 | 0.05 | | 15 | 0 | 15 | | | 0 | | | | | | | | | | |
| way #11 | 200 | 0 | 0.5 | 0.03 | | 10 | 0 | 10 | | | 0 | | | | | | | | | | |
| ay - Elev #7 | 0 | 0 | 0 | 0 | | 14 | 0 | | 2 | | 0 | | | | | | | | | | |
| y | 2,200 | 0 | 0.5 | 0.18 | | 33 | 0 | | 3 | | 55 | 4.6 | 5 | 0.78 | | | | | | | |
| s | 0 | 0 | 0 | 0 | | 270 | 0 | | 27 | | 0 | | | | | | | | | | |
| Computer Area | 7,425 | 0 | 2 | 5 | | 41 | 0 | | | Yes(0) | 60 | 5 | 7.5 | 1.12 | | | | | | | |
| Computer Area | 4,650 | 0 | 1 | 1.5 | | 0 | 0 | | | Yes(0) | 60 | 5 | 7.5 | 1.12 | | | | | | Drycooler | |
| entrance way | 400 | 0 | 0 | 0.03 | | 37 | 0 | | 4 | | 0 | | | | | | | | | | |
| Lobby Area | 4,150 | 1,620 | 1.8 | 3 | 1.5 | 118 | 0 | | 11 | | 157 | 13.1 | 14 | 0.78 | | | | | | | |
| Mgr. office/Mezz | 800 | 0 | 1.3 | 0.3 | | 4 | 0 | | 0.4 | | 48 | 4 | 4 | 0.78 | | | | | | | |
| rium | 7,700 | 1,540 | 3 | 7.5 | | 110 | 0 | 110 | | | 180 | 15 | 20 | 0.99 | 45 | 1.6 | | | 3 | | |
| orium | 7,700 | 1,540 | 3 | 7.5 | | 110 | 0 | 110 | | | 180 | 15 | 20 | 0.99 | 45 | 1.6 | | | 3 | | |
| 8 Mezz Area | 8,165 | 1,650 | 2 | 5 | | 132 | 0 | 132 | | | 180 | 15 | 20 | 0.99 | | | | | | 45 | T |
| 8 Mezz Area | 1,000 | 0 | 0.5 | 0.10 | | 15 | 0 | | 2 | | 25 | 2.1 | 2 | 0.78 | | | | | | | |
| 0 Mezz Area | 0 | 0 | [illegible] | 0 | | [illegible] | 0 | | 19 | | 0 | | | | | | | | | | |
| nent, First & Mezzanine | 283,797 | 15,943 | N/A | 198 | 5 | 4,852 | 0 | 2,225 | 260 | 3 | 5,294 | 439 | 557 | 0.95 | 90 | 3 | 0 | 0 | 6 | 310 | |



2

NINE)

| Cooling Type (Est. Cond Flows/hp) | | | | | | | | | Cooling Equipment | System Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHW Water(gpm) | CHW Water(hp) | Cond Water(gpm) | Cond Water(hp) | CHW Air(hp) | DX-Cond Water(gpm) | DX-Cond Water(hp) | DX Air(hp) | MCA-CHW Water(gpm) | Field Data/Reference/(Location) | Total (hp) | Total (kw) | HVAC Item |
| | | | | | | | 6 | | McQuay ALP(Outside on grade) | 66.1 | 49.3 | 1 |
| | | | | | | | 1 | | Carrier 38(Location unknown) | 6.8 | 5.1 | 2 |
| | | | | | | | 1 | | Carrier 38(Location unknown) | 6.8 | 5.1 | 3 |
| | | | | | | | 6 | | unknown (Outside on grade) | 66.1 | 49.3 | 4 |
| | | | | | — | | 1 | | unknown(Outside on grade) | 10.6 | 7.9 | 5 |
| | | | | | Drycooler | 1.5 | 1.5 | | Liebert(Outside on grade) | 14.5 | 10.8 | 6 |
| | | | | | Drycooler | 2.0 | 2.3 | | Liebert(Outside on grade) | 27.3 | 20.3 | 7 |
| | | | | | Drycooler | 1.5 | 1.5 | | Liebert(Outside on grade) | 12.0 | 9.0 | 8 |
| | | | | | | | | 12 | Plant Chilled Water @ 55 degrees F | 3.1 | 2.3 | 9 |
| | | | | | | | | 7 | Plant Chilled Water @ 55 degrees F | 4.2 | 3.1 | 10 |
| | | | | | | | | 7 | Plant Chilled Water @ 55 degrees F | 4.2 | 3.1 | 11 |
| | | | | | | | | 7 | Plant Chilled Water @ 55 degrees F | 4.2 | 3.1 | 12 |
| | | | | | | | | 7 | Plant Chilled Water @ 55 degrees F | 4.2 | 3.1 | 13 |
| | | | | | | | | 7 | Plant Chilled Water @ 55 degrees F | 4.2 | 3.1 | 14 |
| | | | | | | | | | N/A | 0.0 | 0.03 | 15 |
| | | | | | | | | | N/A | 0.0 | 0.03 | 16 |
| | | | | | | | | | N/A | 0.0 | 0.03 | 17 |
| | | | | | | | | | N/A | 0.0 | 0.03 | 18 |
| | | | | | | | | | N/A | 0.0 | 0.03 | 19 |
| | | | | | | | | 10 | N/A | 4.1 | 3.04 | 20 |
| | | | | | | | | | N/A | 0.0 | 0.00 | 21 |
| | | | | | | | | | N/A | 0.0 | 0.00 | 22 |
| | | | | | | | 0.5 | | unknown (Outside on grade) | 8.0 | 6.0 | 23 |
| | | | | | 45 | Tower 1 | Tower 1 | | Compressor in 1B120 & tower on roof | 44.7 | 33.3 | 24 |
| | | | | | 90 | Tower 2 | Tower 2 | | Packaged unit w/tower on roof | 59.7 | 44.5 | 25 |
| | | | | | | | 1 | | unknown (Outside on grade) | 12.0 | 9.0 | 26 |
| - | - | - | - | - | - | - | - | - | unknown (Outside on grade) | 0.0 | - | 27 |
| | | | | | | | 2 | | Trane BWA 180(Outside on grade) | 19.1 | 14.3 | 28 |
| | | | | | | | 1 | | Trane BWE 120(Outside on grade) | 10.7 | 8.0 | 29 |
| | | | | | | | 1 | | Trane BWA 120(Outside on grade) | 7.1 | 5.3 | 30 |
| | | | | | | | 1 | | Trane BWA 120(Outside on grade) | 7.1 | 5.3 | 31 |
| | | | | | | | 0.75 | | Trane BTA 090(Outside on grade) | 4.5 | 3.4 | 32 |
| | | | | | 11 | Tower 2 | Tower 2 | | Compressor in 1B123 & tower on roof | 5.2 | 3.9 | 33 |
| | | | | | | | 2 | | Comfort Air(Outside on grade) | 19.3 | 14.4 | 34 |
| | | | | | 45 | Tower 2 | Tower 2 | | Compressor in 1B142 & tower on roof | 27.5 | 20.5 | 35 |
| | | | | | 15 | Tower 3 | Tower 3 | | Compressor in 1B141A & tower on roof | 8.6 | 6.4 | 36 |
| | | | | | | | | | N/A | 0.0 | 0.03 | 37 |
| | | | | | | | | | N/A | 0.1 | 0.07 | 38 |
| | | | | | | | | | N/A | 0.1 | 0.07 | 39 |
| | | | | | | | | | N/A | 0.1 | 0.07 | 40 |
| | | | | | | | | | N/A | 0.0 | 0.03 | 41 |
| | | | | | | | | | N/A | 0.1 | 0.07 | 42 |
| | | | | | | | | | N/A | 0.0 | 0.03 | 43 |
| | | | | | | | | | N/A | 0.0 | 0.00 | 44 |
| | | | | | | | | | N/A | 0.0 | 0.00 | 45 |
| | | | | | | | | | N/A | 0.0 | 0.00 | 46 |
| | | | | | 0 | 0 | 1 | | unknown(Location unknown) | 9.8 | 7.3 | 47 |
| | | | | | 0 | 0 | 1 | | Trane(Outside on grade) | 10.0 | 7.5 | 48 |
| | | | | | | | | 13 | Plant Chilled Water @ 55 degrees F | 7.5 | 5.6 | 49 |
| | | | | | 15 | Tower 3 | Tower 3 | | Compressor in 1B212 & tower on roof | 8.6 | 6.4 | 50 |
| | | | | | | | | | N/A | 0.1 | 0.07 | 51 |
| | | | | | | | | | N/A | 0.0 | 0.00 | 52 |
| | | | | | | | | 12 | Plant Chilled Water @ 55 degrees F | 6.3 | 4.7 | 53 |
| | | | | | | | | 12 | Plant Chilled Water @ 55 degrees F | 6.8 | 5.1 | 54 |
| | | | | | | | | 12 | Plant Chilled Water @ 55 degrees F | 6.8 | 5.1 | 55 |
| | | | | | | | | 12 | Plant Chilled Water @ 55 degrees F | 6.8 | 5.1 | 56 |
| | | | | | | | | 23 | Plant Chilled Water @ 55 degrees F | 12.9 | 9.6 | 57 |
| | | | | | | | | 12 | Plant Chilled Water @ 55 degrees F | 6.7 | 5.0 | 58 |
| | | | | | | | | 12 | Plant Chilled Water @ 55 degrees F | 6.7 | 5.0 | 59 |
| | | | | | | | | | N/A | 0.0 | 0.02 | 60 |
| | | | | | | | | | N/A | 0.2 | 0.11 | 61 |
| | | | | | | | | | N/A | 0.1 | 0.04 | 62 |
| | | | | | | | | | N/A | 0.2 | 0.15 | 63 |
| | | | | | | | | | N/A | 0.2 | 0.15 | 64 |
| | | | | | 45 | Tower 3(?) | Tower 3 | | Compressor in 1B322 & tower on roof | 20.7 | 15.4 | 65 |
| | | | | | | | | | N/A | 0.0 | 0.02 | 66 |
| | | | | | | | | | N/A | 0.4 | 0.32 | 67 |
| | | | | | | | | | N/A | 0.0 | 0.00 | 68 |
| | | | | | | | | | N/A | 0.0 | 0.00 | 69 |
| | | | | | | | | 12 | N/A | 5.0 | 3.71 | 70 |
| | | | | | | | | | N/A | 0.0 | 0.00 | 71 |
| | | | | | | | | | N/A | 0.0 | 0.02 | 72 |
| | | | | | | | | 12 | Plant Chilled Water @ 55 degrees F | 6.8 | 5.1 | 73 |
| | | | | | | | | 23 | Plant Chilled Water @ 55 degrees F | 12.7 | 9.5 | 74 |
| | | | | | | | | 34 | Plant Chilled Water @ 55 degrees F | 22.1 | 16.5 | 75 |
| | | | | | | | | 34 | Plant Chilled Water @ 55 degrees F | 22.1 | 16.5 | 76 |
| | | | | | Drycooler | 1.5 | 1.5 | | Liebert(Outside on grade) | 12.0 | 9.0 | 77 |
| | | | | | Drycooler | 1.5 | 1.5 | | Liebert(Outside on grade) | 12.0 | 9.0 | 78 |
| | | | | | | | | | N/A | 0.1 | 0.04 | 79 |
| | | | | | | | | | N/A | 0.0 | 0.02 | 80 |
| | | | | | | | | | N/A | 0.0 | 0.00 | 81 |
| | | | | | | | | 12 | N/A | 5.0 | 3.71 | 82 |
| | | | | | | | | | N/A | 0.0 | 0.00 | 83 |
| | | | | | | | 1 | | Trane(Outside on grade) | 13.3 | 9.9 | 84 |
| | | | | | Drycooler | 1.5 | 1.5 | | Liebert(Outside on grade) | 12.0 | 9.0 | 85 |
| | | | | | | | | | N/A | 0.0 | 0.02 | 86 |
| | | | | | | | | 31 | Plant Chilled Water @ 55 degrees F | 18.2 | 13.6 | 87 |
| | | | | | | | | 10 | Plant Chilled Water @ 55 degrees F | 4.5 | 3.4 | 88 |
| 45 | 1.6 | | | 3 | | | 3 | | McQuay AHR(Common - out on grade) | 35.3 | 26.4 | 89 |
| 45 | 1.6 | | | 3 | | | 3 | | McQuay AHR(Common - out on grade) | 35.3 | 26.4 | 90 |
| | | | | | 45 | Tower 2 | Tower 2 | | Compressor in 1B123 & tower on roof | 25.0 | 18.7 | 91 |
| | | | | | | | | 6 | Plant Chilled Water @ 55 degrees F | 2.3 | 1.70 | 92 |
| | | | | | | | | | N/A | 0.0 | 0.00 | 93 |
| 90 | 3 | 0 | 0 | 6 | 310 | 30 | 45 | 338 | | 827 | 617 | 1.41 |

3

| HVAC Item | Design/Site Designation | Equip Type | Field Data/Reference/(Location) | Area Served | Flowrate (cfm) | OA (cfm) | TSP (in w g) | Supp. Fan (hp) | RA/OA (hp) | Heating (MBH) | Re-Heat (MBH) | Steam (lb/hr) | MC (g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | HVAC Airside Equipment - General Information | | | | Est Airside Data (Evap Fan) | | | | | Est Heating Load | | Heating Type | |
| 94 | AC-2 | AHU | unknown(MR - 21 South 2C/D100 Area) | 2D110 offices | 11,800 | 800 | 1 | 5 | | 126 | | 126 | |
| 95 | - | Recirc AC | Datac(2D106/Computer room) | 2D106 | 2,800 | 0 | 1 | 1.5 | | 0 | | | |
| 96 | AHU-2-1 | AHU-MCA | Trane C C (MR - 21-A South 2C/D100 Area | 2C/D100 offices/corridors | 8,230 | 1,235 | 3.0 | 10.0 | 3 | 36 | | | |
| 97 | AC-3 | AHU | unknown(MR - 22 North 2C/D100 Area) | 2D130 electronics lab | 10,200 | 2,100 | 2 | 5 | | 209 | | 209 | |
| 98 | AHU-2-2 | AHU-MCA | Trane C C (MR - 22-A North 2C/D100 Area | 2C/D100 offices/corridors | 8,140 | 1,221 | 2.5 | 7.5 | 3 | 73 | | | |
| 99 | - | AHU | Cargoaire(located on roof) | 2D140 Dryroom | 6,252 | 625 | 5 | 10 | | 66 | | | |
| 100 | - | AHU | unknown(MR-22 North 2C/D100 Area) | 2D204 lab area | 10,667 | 0 | 3 | 10 | | 0 | | | |
| 101 | FC-1(78) | FC | unknown(78 in 2C/D100 area) | 2C/D100 perimeter areas | 15,600 | 0 | 0.5 | 1.3 | | 234 | | | |
| 102 | C-4 | Convector | unknown(Near Elevator #1 - Second floor) | Hallway - Elev #1 | 0 | 0 | 0 | 0 | | 14 | | | |
| 103 | - | AHU-MCA | Carrier 39LV(MR-23 East 2C/D200 Area) | 2D210 lab area | 8,000 | 0 | 3 | 7.5 | | 0 | | | |
| 104 | AHU-2-3 | AHU-MCA | Trane C C (MR-23 East 2C/D200 Area) | 2C/D200/300 offices/corridors | 13,680 | 2,045 | 2.5 | 15 | 5 | 124 | | | |
| 105 | FC-1(35) | FC | unknown(35 in 2C/D200 area) | 2C/D200 perimeter areas | 7,000 | 0 | 0.5 | 0.6 | | 105 | | | |
| 106 | AC-14 | AHU | unknown(MR - 23 East 2C/D200 Area) | 2D306 lab area | 16,520 | 2,250 | 2 | 7.5 | | 393 | | 393 | |
| 107 | - | AHU | unknown(2D310 Cleanroom) | 2D310 Cleanroom | 2,600 | 1,900 | 6 | 5 | | 0 | 51 | 51 | |
| 108 | - | AHU | Trane SWUB(2C325) | 2C325 | 4,000 | 0 | 2.5 | 3 | | 0 | | | |
| 109 | - | AHU | Chrysler(2D330) | 2D330 area | 13,000 | 0 | 2.5 | 10 | | 0 | | | |
| 110 | - | Recirc AC | Liebert(2D335/Computer room) | 2D335 | 2,800 | 0 | 1 | 1.5 | | 0 | | | |
| 111 | - | AC | Hideaway Pkg Unit(2D337) | 2D337 | 1,067 | 0 | 1.5 | 0.5 | | 0 | | | |
| 112 | AHU-2-4 | AHU-MCA | Trane C C (MR-24 East 2C/D300 Area) | 2C/D300 offices/corridors | 7,940 | 1,180 | 2.8 | 7.5 | 3 | 72 | | | |
| 113 | FC-1(83) | FC | unknown(83 in 2C/D300 area) | 2C/D300 perimeter areas | 16,600 | 0 | 0.5 | 1.4 | | 249 | | | |
| 114 | AHU-2-4A | AHU-MCA | Trane C C (MR-24 East 2C/D300 Area) | 2C/D400 offices/corridors | 5,025 | 760 | 2.0 | 5 | 1.5 | 45 | | | |
| 115 | - | Recirc AC | Datac(2C405/Computer room) | 2C405 | 2,800 | 0 | 1 | 1 | | 0 | | | |
| 116 | - | Recirc AC | Datac(2C407/Computer room) | 2C407 | 2,800 | 0 | 1 | 1 | | 0 | | | |
| 117 | FC-1(41) | FC | unknown(41 in 2C/D400 area) | 2C/D400 perimeter areas | 8,200 | 0 | 0.5 | 0.7 | | 123 | | | |
| 118 | AHU-2-5 | AHU-MCA | Trane C C (MR-25 South 2C/D400 Area) | 2C/D400 offices/corridors | 4,390 | 660 | 2.3 | 5 | 1.5 | 39 | | | |
| 119 | AHU-2-5A | AHU-MCA | Trane C C (MR-25 South 2C/D400 Area) | 2C/D400/500 offices/corridors | 2,750 | 410 | 2.0 | 2 | 1.5 | 25 | | | |
| 120 | FC-1(19) | FC | unknown(19 in 2C/D500 area) | 2C/D500 perimeter areas | 3,800 | 0 | 0.5 | 0.3 | | 57 | | | |
| 121 | C-5 | Convector | unknown(Near Elevator #7 - Second floor) | Hallway - Elev #7 | 0 | 0 | 0 | 0 | | 12 | | | |
| 122 | AHU-3-1 | AHU-MCA | Trane C C (MR-31 South 3C/D100 Area) | 3C/D100 offices/corridors | 6,855 | 1,030 | 2.5 | 7.5 | 2 | 62 | | | |
| 123 | AHU-3-1A | AHU-MCA | Trane C C (MR-31 South 3C/D100 Area) | 3C/D100 offices/corridors | 4,140 | 555 | 2.5 | 5 | 1.5 | 38 | | | |
| 124 | - | AHU | Copeland WZW(3D114) | 3D114 area | 8,000 | 0 | 2 | 5 | | 0 | | | |
| 125 | AHU-3-2 | AHU-MCA | Trane C C (MR-32 North 3C/D100 Area) | 3C/D100 offices/corridors | 6,420 | 965 | 2.5 | 7.5 | 2.5 | 58 | | | |
| 126 | AHU-3-2A | AHU-MCA | Trane C C (MR-32 North 3C/D100 Area) | 3C/D100/200 offices/corridors | 4,410 | 660 | 2.3 | 7.5 | 1.5 | 40 | | | |
| 127 | - | Recirc AC | Trane RAVC(3C141/Computer room) | 3C141 | 3,360 | 0 | 1 | 1 | | 0 | | | |
| 128 | - | Recirc AC | Liebert(3C143/Computer room) | 3C143 | 4,650 | 0 | 1 | 1.5 | | 0 | | | |
| 129 | FC-1(95) | FC | unknown(95 in 3C/D100 area) | 3C/D100 perimeter areas | 19,000 | 0 | 0.5 | 1.6 | | 285 | | | |
| 130 | C-5 | Convector | unknown(Near Elevator #1 - Third floor) | Hallway - Elev #1 | 0 | 0 | 0 | 0 | | 12 | | | |
| 131 | - | (2)AHU | York(MR - 33 East 3C/D200 Area) | 3D306-3C321 lab area | 32,000 | 3,200 | 3 | 30 | | 458 | | 458 | |
| 132 | - | FC's(?) | unknown(Rooms 3D314 - 3C321) | 3D314 - 3C321 lab area | 8,000 | 0 | 1 | 2 | | 0 | | | |
| 133 | AHU-3-3 | AHU-MCA | Trane C C (MR-33 East 3C/D200/300 Area) | 3C/D200/300 offices/corridors | 12,820 | 1,9[illegible] | 2.5 | 15 | 5 | 116 | | | |
| 134 | FC-1(35) | FC | unknown(35 in 3C/D200 area) | 3C/D200 perimeter areas | 7,000 | 0 | 0.5 | 0.6 | | 105 | | | |
| 135 | - | AHU | Climatrol(MR-34 South 3C/D300 Area) | 3D330 Cleanroom | 25,000 | 5,000 | 3 | 20 | | 358 | | 358 | |
| 136 | AHU-3-4 | AHU-MCA | Trane C C (MR-34 South 3C/D300/400 Area) | 3C/D300/400 offices/corridors | 6,600 | 990 | 2.5 | 7.5 | 2.5 | 59 | | | |
| 137 | FC-1(83) | FC | unknown(83 in 3C/D300 area) | 3C/D300 perimeter areas | 16,600 | 0 | 0.5 | 1.4 | | 249 | | | |
| 138 | | Recirc AC | Liebert(3D402/Computer room) | 3D402 | 4,650 | 0 | 1 | 1.5 | | 0 | | | |
| 139 | - | Recirc AC | Liebert(3D402/Computer room) | 3D402 | 4,650 | 0 | 1 | 1.5 | | 0 | | | |
| 140 | - | Recirc AC | Liebert(3D404/Computer room) | 3D404 | 8,400 | 0 | 1.5 | 3 | | 0 | | | |
| 141 | - | Recirc AC | Liebert(3D406/Computer room) | 3D406 | 4,650 | 0 | 1 | 1.5 | | 0 | | | |
| 142 | - | Recirc AC | Liebert(3D406/Computer room) | 3D406 | 4,650 | 0 | 1 | 1.5 | | 0 | | | |
| 143 | - | Recirc AC | Liebert(3D409/Computer room) | 3D409 | 5,650 | 0 | 1.5 | 2 | | 0 | | | |
| 144 | - | Recirc AC | Liebert(3D410/Computer room) | 3D410 | 8,400 | 0 | 1.5 | 3 | | 0 | | | |
| 145 | - | Recirc AC | Liebert(3D412/Computer room) | 3D412 | 10,200 | 0 | 1.5 | 5 | | 0 | | | |
| 146 | - | Recirc AC | Liebert(3D412/Computer room) | 3D412 | 10,200 | 0 | 1.5 | 5 | | 0 | | | |
| 147 | FC-1(40) | FC | unknown(40 in 3C/D400 area) | 3C/D400 perimeter areas | 8,000 | 0 | 0.5 | 0.7 | | 120 | | | |
| 148 | AHU-3-5 | AHU-MCA | Trane C C (MR-35 South 3C/D400 Area) | 3C/D400 offices/corridors | 6,960 | 1,045 | 2.3 | 7.5 | 3 | 63 | | | |
| 149 | AHU-3-5A | AHU-MCA | Trane C C (MR-35 South 3C/D400 Area) | 3C/D400/500 offices/corridors | 1,785 | 270 | 2.5 | 2.0 | 0.75 | 16 | | | |
| 150 | FC-1(19) | FC | unknown(19 in 3C/D500 area) | 3C/D500 perimeter areas | 3,800 | 0 | 0.5 | 0.3 | | 57 | | | |
| 151 | C-5 | Convector | unknown(Near Elevator #7 - Third floor) | Hallway - Elev #7 | 0 | 0 | 0 | 0 | | 12 | | | |
| 152 | AC-7 | AHU | unknown(MR - 41 South 4C/D100 Area) | 4D110 lab/offices | 18,300 | 2,000 | 3 | 10 | | 264 | | 264 | |
| 153 | AC-1(New) | AHU | Governair RSA06(located on roof) | 4D130 Cleanroom (Class 100) | 25,000 | 5,000 | 5 | 40 | | 0 | 563 | 563 | |
| 154 | AC-2(New) | AHU | Governair RSA03(located on roof) | 4D130/140 Cleanrooms(Class 100) | 15,000 | 3,000 | 5 | 30 | | 0 | 317 | 317 | |
| 155 | AC-3(New) | AHU | Governair RSA02(located on roof) | 4D130 Cleanroom (Class 10) | 10,000 | 2,000 | 5 | 15 | | 0 | 229 | 229 | |
| 156 | - | AHU | Carrier ?(in/above 4D140 Cleanroom) | 4D140 Cleanroom | 10,700 | 0 | 3 | 10 | | 0 | | | |
| 157 | AHU-R-1 | AHU-MCA | Trane C C (On roof above 4C/D100 Area) | 4C/D100 offices/corridors | 7,270 | 1,310 | 2.5 | 7.5 | 3 | 79 | | | |
| 158 | AHU-R-2 | AHU-MCA | Trane C C (On roof above 4C/D100 Area) | 4C/D100 offices/corridors | 5,305 | 955 | 2.3 | 7.5 | 2 | 58 | | | |
| 159 | FC-1(83) | FC | unknown(83 in 4C/D100 area) | 4C/D100 perimeter areas | 16,600 | 0 | 0.5 | 1.4 | | 249 | | | |
| 160 | C-5 | Convector | unknown(Near Elevator #1 - Fourth floor) | Hallway - Elev #1 | 0 | 0 | 0 | 0 | | 12 | | | |
| 161 | - | Recirc AC | Data Air(4C205/Computer room) | 4C205 Area | 5,650 | 0 | 1.5 | 2 | | 0 | | | |
| 162 | - | Recirc AC | Data Air(4C209/Computer room) | 4C209 Area | 5,650 | 0 | 1.5 | 2 | | 0 | | | |
| 163 | - | Recirc AC | Data Air(4C211/Computer room) | 4C211 Area | 5,650 | 0 | 1.5 | 2 | | 0 | | | |
| 164 | - | Recirc AC | Data Air(4C213/Computer room) | 4C213 Area | 5,650 | 0 | 1.5 | 2 | | 0 | | | |
| 165 | - | Recirc AC | Edpac(4D204/Computer room) | 4D204 Area | 5,650 | 0 | 1.5 | 2 | | 0 | | | |
| 166 | - | Recirc AC | Edpac(4D204/Computer room) | 4D204 Area | 5,650 | 0 | 1.5 | 2 | | 0 | | | |
| 167 | - | Recirc AC | Data Air(4D208/Computer room) | 4D208 Area | 9,300 | 0 | 1.5 | 5 | | 0 | | | |
| 168 | - | Recirc AC | Data Air(4D210/Computer room) | 4D210 Area | 2,800 | 0 | 1 | 1 | | 0 | | | |
| 169 | - | Recirc AC | Data Air(4D214/Computer room) | 4D214 Area | 2,800 | 0 | 1 | 1 | | 0 | | | |
| 170 | AHU-R-3 | AHU-MCA | Trane C C (On roof above 4C/D300 Area) | 4C/D100/200/300 offices/corridors | 8,035 | 1,455 | 3.3 | 10 | 3 | 87 | | | |
| 171 | FC-1(40) | FC | unknown(40 in 4C/D200 area) | 4C/D200 perimeter areas | 8,000 | 0 | 0.5 | 0.7 | | 120 | | | |
| 172 | - | Recirc AC | Liebert(4D308/Computer room) | 4D308 | 5,650 | 0 | 1.5 | 2 | | 0 | | | |
| 173 | - | Recirc AC | Edpac(4D317/Computer room) | 4C317 | 8,400 | 0 | 1.5 | 3 | | 0 | | | |
| 174 | - | Recirc AC | Liebert(4D324/Computer room) | 4D324 | 8,400 | 0 | 1.5 | 3 | | 0 | | | |
| 175 | - | Recirc AC | Liebert(4D326/Computer room) | 4D326 | 4,650 | 0 | 1 | 1.5 | | 0 | | | |
| 176 | - | Recirc AC | Liebert(4D328/Computer room) | 4D328 | 4,650 | 0 | 1 | 1.5 | | 0 | | | |
| 177 | - | Recirc AC | Liebert(4D328/Computer room) | 4D328 | 4,650 | 0 | 1 | 1.5 | | 0 | | | |
| 178 | AHU-R-4 | AHU-MCA | Trane C C (On roof above 4C/D300 Area) | 4C/D300 offices/corridors | 5,135 | 925 | 2.3 | 5 | 1.5 | 56 | | | |
| 179 | FC-1(88) | FC | unknown(88 in 4C/D300 area) | 4C/D300 perimeter areas | 17,600 | 0 | 0.5 | 1.5 | | 264 | | | |
| 180 | - | Recirc AC | Datac(4C405/Computer room) | 4C405 | 8,400 | 0 | 1.5 | 3 | | 0 | | | |
| 181 | - | Recirc AC | Liebert(4C405/Computer room) | 4C405 | 8,400 | 0 | 1.5 | 3 | | 0 | | | |
| 182 | - | Recirc AC | Liebert(4C405/Computer room) | 4C405 | 8,400 | 0 | 1.5 | 3 | | 0 | | | |
| 183 | - | Recirc AC | Liebert(4C405/Computer room) | 4C405 | 4,650 | 0 | 1 | 1.5 | | 0 | | | |
| 184 | - | Recirc AC | Liebert(4C417/Computer room) | 4C417 | 8,400 | 0 | 1.5 | 3 | | 0 | | | |
| 185 | - | Recirc AC | Liebert(4C417/Computer room) | 4C417 | 8,400 | 0 | 1.5 | 3 | | 0 | | | |
| 186 | - | Recirc AC | Liebert(4C417/Computer room) | 4C417 | 2,800 | 0 | 1 | 1 | | 0 | | | |
| 187 | AHU-R-5 | AHU-MCA | Trane C C (On roof above 4C/D300 Area) | 4C/D300/400 offices/corridors | 4,915 | 880 | 2.3 | 5 | 2 | 55 | | | |
| 188 | FC-1(44) | FC | unknown(44 in 4C/D400 area) | 4C/D400 perimeter areas | 8,800 | 0 | 0.5 | 0.7 | | 132 | | | |
| 189 | AHU-R-6 | AHU-MCA | Trane C C (On roof above 4C/D500 Area) | 4C/D400/500 offices/corridors | 7,785 | 1,410 | 3.0 | 10 | 3 | 84 | | | |
| 190 | FC-1(20) | FC | unknown(20 in 4C/D500 area) | 4C/D500 perimeter areas | 4,000 | 0 | 0.5 | 0.3 | | 60 | | | |
| 191 | C-5 | Convector | unknown(Near Elevator #7 - Fouth floor) | Hallway - Elev #7 | 0 | 0 | 0 | 0 | | 12 | | | |
| | | | | Second, Third & Fourth Totals | 748,606 | 49,761 | N/A | 476 | 52 | 5,647 | 1,160 | 2,970 | |
| | | | | Building Totals | 1,032,402 | 65,704 | N/A | 674 | 57 | 10,500 | 1,160 | 5,195 | |



①

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 HVAC SUMMARY (SECOND, THIRD & FOURTH FLOORS)

TABLE 3.4.1.2

| Est. Airside Data (Evap. Fan) | | | | | Est. Heating Load | | Heating Type (Est. Flows/Kw) | | | Est. Cooling Load/Compressor | | | | Cooling Type (Est. Cond. Flows/hp) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flowrate (cfm) | OA (cfm) | TSP (in w g) | Supp. Fan (hp) | RA/OA (hp) | Heating (MBH) | Re-Heat (MBH) | Steam (lb/hr) | MCA-HW (gpm) | Electric (Kw) | Total (MBH) | Total (Tons) | Comp (hp) | Rating (kW/ton) | CHW Water(gpm) | CHW Water(hp) | Cond Water(gpm) | Cond Water(hp) | CHW Air(hp) | DX-Cond Water(gpm) | DX-Cond Water(hp) | DX Air(hp) |
| 11,800 | 800 | 1 | 5 | | 126 | | 126 | | | 180 | 15 | 20 | 0.99 | | | | | | 45 | Tower 1 | Tower 1 |
| 2,800 | 0 | 1 | 1.5 | | 0 | | | | | 60 | 5 | 7.5 | 1.12 | | | | | | 15 | Tower 1 | Tower 1 |
| 8,230 | 1,235 | 3.0 | 10.0 | 3 | 36 | | | 7.4 | | 63 | 5.3 | 5 | 0.78 | | | | | | | | |
| 10,200 | 2,100 | 2 | 5 | | 209 | | 209 | | | 363 | 30 | 30 | 1.12 | 73 | 3 | 91 | Tower 2 | Tower 2 | | | |
| 8,140 | 1,221 | 2.5 | 7.5 | 3 | 73 | | | 7.4 | | 225 | 18.8 | 20 | 0.78 | | | | | | | | |
| 6,252 | 625 | 5 | 10 | | 68 | | | | 20 | 180 | 15 | 20 | 0.99 | | | | | | — | | 3 |
| 10,667 | 0 | 3 | 10 | | 0 | | | | | 240 | 20 | 30 | 1.12 | | | | | | 60 | Tower 2 | Tower 2 |
| 15,600 | 0 | 0.5 | 1.3 | | 234 | | | 23 | | 390 | 32.5 | 34 | 0.78 | | | | | | | | |
| 0 | 0 | 0 | 0 | | 14 | | | 2 | | 0 | | | | | | | | | | | |
| 8,000 | 0 | 3 | 7.5 | | 0 | | | | | 180 | 15 | 20 | 0.99 | | | | | | 45 | Tower 3 | Tower 3 |
| 13,680 | 2,045 | 2.5 | 15 | 5 | 124 | | | 12.4 | | 378 | 31.5 | 33 | 0.78 | | | | | | | | |
| 7,000 | 0 | 0.5 | 0.6 | | 105 | | | 11 | | 175 | 14.6 | 15 | 0.78 | | | | | | | | |
| 16,520 | 2,250 | 2 | 7.5 | | 393 | | 393 | | | 360 | 30 | 40 | 0.99 | 72 | 3 | 90 | Tower 3 | Tower 3 | | | |
| 2,600 | 1,900 | 6 | 5 | | 0 | 51 | 51 | | | 234 | 15 | 20 | 0.99 | 59 | 2 | | | 3 | | | |
| 4,000 | 0 | 2.5 | 3 | | 0 | | | | | 90 | 7.5 | 10 | 0.99 | | | | | | 23 | Tower 3 | Tower 3 |
| 13,000 | 0 | 2.5 | 10 | | 0 | | | | Yes(0) | 180 | 15 | 20 | 0.99 | | | | | | | | 3 |
| 2,800 | 0 | 1 | 1.5 | | 0 | | | | | 60 | 5 | 7.5 | 1.12 | | | | | | 15 | Tower 4 | Tower 4 |
| 1,067 | 0 | 1.5 | 0.5 | | 0 | | | | | 24 | 2 | 3 | 1.12 | | | | | | 6 | Tower 4 | Tower 4 |
| 7,940 | 1,180 | 2.8 | 7.5 | 3 | 72 | | | 7.2 | | 219 | 18.3 | 19 | 0.78 | | | | | | | | |
| 16,600 | 0 | 0.5 | 1.4 | | 249 | | | 25 | | 415 | 34.6 | 36 | 0.78 | | | | | | | | |
| 5,025 | 760 | 2.0 | 5 | 1.5 | 45 | | | 4.6 | | 139 | 11.6 | 12 | 0.78 | | | | | | | | |
| 2,800 | 0 | 1 | 1 | | 0 | | | | | 60 | 5 | 7.5 | 1.12 | | | | | | 15 | Tower 4 | Tower 4 |
| 2,800 | 0 | 1 | 1 | | 0 | | | | | 60 | 5 | 7.5 | 1.12 | | | | | | 15 | Tower 4 | Tower 4 |
| 8,200 | 0 | 0.5 | 0.7 | | 123 | | | 12 | | 205 | 17.1 | 18 | 0.78 | | | | | | | | |
| 4,390 | 660 | 2.3 | 5 | 1.5 | 39 | | | 4 | | 362 | 30.2 | 32 | 0.78 | | | | | | 60 | Tower 4 | Tower 4 |
| 2,750 | 410 | 2.0 | 2 | 1.5 | 25 | | | 2.5 | | 76 | 6.3 | 7 | 0.78 | | | | | | | | |
| 3,800 | 0 | 0.5 | 0.3 | | 57 | | | 6 | | 95 | 7.9 | 8 | 0.78 | | | | | | | | |
| 0 | 0 | 0 | 0 | | 12 | | | 2 | | 0 | | | | | | | | | | | |
| 6,855 | 1,030 | 2.5 | 7.5 | 2 | 62 | | | 6.2 | | 189 | 15.8 | 16 | 0.78 | | | | | | | | |
| 4,140 | 555 | 2.5 | 5 | 1.5 | 38 | | | 3.8 | | 114 | 9.5 | 10 | 0.78 | | | | | | | | |
| 8,000 | 0 | 2 | 5 | | 0 | | | | | 120 | 10 | 15 | 1.12 | | | | | | 30 | Tower 1 | Tower 1 |
| 6,470 | 965 | 2.5 | 7.5 | 2.5 | 58 | | | 5.8 | | 177 | 14.8 | 15 | 0.78 | | | | | | | | |
| 4,410 | 660 | 2.3 | 7.5 | 1.5 | 40 | | | 4 | | 122 | 10.2 | 11 | 0.78 | | | | | | | | |
| 3,360 | 0 | 1 | 1 | | 0 | | | | | 72 | 6 | 10 | 1.24 | | | | | | | | 1.5 |
| 4,650 | 0 | 1 | 1.5 | | 0 | | | | | 84 | 7 | 10 | 1.07 | | | | | | 21 | Tower 1 | Tower 1 |
| 19,000 | 0 | 0.5 | 1.6 | | 285 | | | 29 | | 475 | 39.6 | 41 | 0.78 | | | | | | | | |
| 0 | 0 | 0 | 0 | | 12 | | | 2 | | 0 | | | | | | | | | | | |
| 32,000 | 3,200 | 3 | 30 | | 458 | | 458 | | | 480 | 40 | 50 | 0.93 | | | | | | | | 8 |
| 8,000 | 0 | 1 | 2 | | 0 | | | | | 120 | 10 | 15 | 1.12 | 30 | 1 | | | 2 | | | |
| 12,820 | 1,925 | 2.5 | 15 | 5 | 116 | | | 11.6 | | 334 | 27.8 | 29 | 0.78 | | | | | | | | |
| 7,000 | 0 | 0.5 | 0.6 | | 105 | | | 11 | | 175 | 14.6 | 15 | 0.78 | | | | | | | | |
| 25,000 | 5,000 | 3 | 20 | | 358 | | 358 | | | 600 | 50 | 60 | 0.90 | 150 | 6 | | | 10 | | | |
| 6,600 | 990 | 2.5 | 7.5 | 2.5 | 59 | | | 6.0 | | 182 | 15.2 | 16 | 0.78 | | | | | | | | |
| 16,600 | 0 | 0.5 | 1.4 | | 249 | | | 25 | | 415 | 34.6 | 36 | 0.78 | | | | | | | | |
| 4,650 | 0 | 1 | 1.5 | | 0 | | | | | 84 | 7 | 10 | 1.07 | | | | | | Drycooler | 1.5 | 1.5 |
| 4,650 | 0 | 1 | 1.5 | | 0 | | | | | 84 | 7 | 10 | 1.07 | | | | | | Drycooler | 1.5 | 1.5 |
| 8,400 | 0 | 1.5 | 3 | | 0 | | | | | 120 | 10 | 15 | 1.12 | | | | | | Drycooler | 2.0 | 2.3 |
| 4,650 | 0 | 1 | 1.5 | | 0 | | | | | 84 | 7 | 10 | 1.07 | | | | | | Drycooler | 1.5 | 1.5 |
| 4,650 | 0 | 1 | 1.5 | | 0 | | | | | 84 | 7 | 10 | 1.07 | | | | | | Drycooler | 1.5 | 1.5 |
| 5,650 | 0 | 1.5 | 2 | | 0 | | | | | 108 | 9 | 15 | 1.24 | | | | | | Drycooler | 1.5 | 1.5 |
| 8,400 | 0 | 1.5 | 3 | | 0 | | | | | 120 | 10 | 15 | 1.12 | | | | | | Drycooler | 2.0 | 2.3 |
| 10,200 | 0 | 1.5 | 5 | | 0 | | | | | 180 | 15 | 20 | 0.99 | | | | | | Drycooler | 3.0 | 3.0 |
| 10,200 | 0 | 1.5 | 5 | | 0 | | | | | 180 | 15 | 20 | 0.99 | | | | | | Drycooler | 3.0 | 3.0 |
| 8,000 | 0 | 0.5 | 0.7 | | 120 | | | 12 | | 200 | 16.7 | 17 | 0.78 | | | | | | | | |
| 6,960 | 1,045 | 2.3 | 7.5 | 3 | 63 | | | 6.3 | | 192 | 16.0 | 17 | 0.78 | | | | | | | | |
| 1,785 | 270 | 2.5 | 2.0 | 0.75 | 16 | | | 1.6 | | 49 | 4.1 | 4 | 0.78 | | | | | | | | |
| 3,800 | 0 | 0.5 | 0.3 | | 57 | | | 6 | | 95 | 7.9 | 8 | 0.78 | | | | | | | | |
| 0 | 0 | 0 | 0 | | 12 | | | 2 | | 0 | | | | | | | | | | | |
| 16,300 | 2,000 | 3 | 10 | | 264 | | 264 | | | 500 | [illegible] | 40 | 0.99 | 101 | 4 | 127 | Tower 1 | Tower 1 | | | |
| 25,000 | 6,000 | 5 | 40 | | 0 | 563 | 563 | | | 373 | 62 | 78 | 0.93 | 93 | 4 | | | 10 | | | |
| 15,000 | 3,000 | 5 | 30 | | 0 | 317 | 317 | | | 224 | 37 | 47 | 0.93 | 56 | 2 | | | 5 | | | |
| 10,000 | 2,000 | 5 | 15 | | 0 | 229 | 229 | | | 149 | 25 | 31 | 0.93 | 37 | 1 | | | 3 | | | |
| 10,700 | 0 | 3 | 10 | | 0 | | | | | 180 | 15 | 20 | 0.99 | 45 | 2 | | | 3 | | | |
| 7,270 | 1,310 | 2.5 | 7.5 | 3 | 79 | | | 7.9 | | 211 | 17.6 | 18 | 0.78 | | | | | | | | |
| 5,305 | 955 | 2.3 | 7.5 | 2 | 58 | | | 5.8 | | 154 | 12.8 | 13 | 0.78 | | | | | | | | |
| 16,600 | 0 | 0.5 | 1.4 | | 249 | | | 25 | | 415 | 34.6 | 36 | 0.78 | | | | | | | | |
| 0 | 0 | 0 | 0 | | 12 | | | 2 | | 0 | | | | | | | | | | | |
| 5,650 | 0 | 1.5 | 2 | | 0 | | | | | 108 | 9 | 15 | 1.24 | | | | | | (2)Drycoolers | 9 | 6 |
| 5,650 | 0 | 1.5 | 2 | | 0 | | | | | 108 | 9 | 15 | 1.24 | | | | | | - | - | - |
| 5,650 | 0 | 1.5 | 2 | | 0 | | | | | 108 | 9 | 15 | 1.24 | | | | | | - | - | - |
| 5,650 | 0 | 1.5 | 2 | | 0 | | | | | 108 | 9 | 15 | 1.24 | | | | | | - | - | - |
| 5,650 | 0 | 1.5 | 2 | | 0 | | | | | 108 | 9 | 15 | 1.24 | | | | | | - | - | - |
| 5,650 | 0 | 1.5 | 2 | | 0 | | | | | 108 | 9 | 15 | 1.24 | | | | | | - | - | - |
| 9,300 | 0 | 1.5 | 5 | | 0 | | | | | 180 | 15 | 20 | 0.99 | | | | | | - | - | - |
| 2,800 | 0 | 1 | 1 | | 0 | | | | | 60 | 5 | 7.5 | 1.12 | | | | | | - | - | - |
| 2,800 | 0 | 1 | 1 | | 0 | | | | | 60 | 5 | 7.5 | 1.12 | | | | | | - | - | - |
| 8,035 | 1,455 | 3.3 | 10 | 3 | 87 | | | 8.8 | | 233 | 19.4 | 20 | 0.78 | | | | | | | | |
| 8,000 | 0 | 0.5 | 0.7 | | 120 | | | 12 | | 200 | 16.7 | 17 | 0.78 | | | | | | | | |
| 5,650 | 0 | 1.5 | 2 | | 0 | | | | | 108 | 9 | 15 | 1.24 | | | | | | 27 | Tower 3 | Tower 3 |
| 8,400 | 0 | 1.5 | 3 | | 0 | | | | | 120 | 10 | 15 | 1.12 | | | | | | 30 | Tower 3 | Tower 3 |
| 8,400 | 0 | 1.5 | 3 | | 0 | | | | | 120 | 10 | 15 | 1.12 | | | | | | Drycooler | 2.0 | 2.3 |
| 4,650 | 0 | 1 | 1.5 | | 0 | | | | | 84 | 7 | 10 | 1.07 | | | | | | Drycooler | 1.5 | 1.5 |
| 4,650 | 0 | 1 | 1.5 | | 0 | | | | | 84 | 7 | 10 | 1.07 | | | | | | Drycooler | 1.5 | 1.5 |
| 4,650 | 0 | 1 | 1.5 | | 0 | | | | | 84 | 7 | 10 | 1.07 | | | | | | Drycooler | 1.5 | 1.5 |
| 5,135 | 925 | 2.3 | 5 | 1.5 | 56 | | | 5.6 | | 149 | 12.4 | 13 | 0.78 | | | | | | | | |
| 17,600 | 0 | 0.5 | 1.5 | | 264 | | | 26 | | 440 | 36.7 | 38 | 0.78 | | | | | | | | |
| 8,400 | 0 | 1.5 | 3 | | 0 | | | | | 120 | 10 | 15 | 1.12 | | | | | | Drycooler | 2.0 | 2.3 |
| 8,400 | 0 | 1.5 | 3 | | 0 | | | | | 120 | 10 | 15 | 1.12 | | | | | | Drycooler | 2.0 | 2.3 |
| 8,400 | 0 | 1.5 | 3 | | 0 | | | | | 120 | 10 | 15 | 1.12 | | | | | | Drycooler | 2.0 | 2.3 |
| 4,650 | 0 | 1 | 1.5 | | 0 | | | | | 84 | 7 | 10 | 1.07 | | | | | | Drycooler | 1.5 | 1.5 |
| 8,400 | 0 | 1.5 | 3 | | 0 | | | | | 120 | 10 | 15 | 1.12 | | | | | | Drycooler | 2.0 | 2.3 |
| 8,400 | 0 | 1.5 | 3 | | 0 | | | | | 120 | 10 | 15 | 1.12 | | | | | | Drycooler | 2.0 | 2.3 |
| 2,800 | 0 | 1 | 1 | | 0 | | | | | 60 | 5 | 7.5 | 1.12 | | | | | | Drycooler | 1.5 | 1.5 |
| 4,915 | 880 | 2.3 | 5 | 2 | 55 | | | 5.4 | | 143 | 11.9 | 12 | 0.78 | | | | | | | | |
| 8,800 | 0 | 0.5 | 0.7 | | 132 | | | 13 | | 220 | 18.3 | 19 | 0.78 | | | | | | | | |
| 7,785 | 1,410 | 3.0 | 10 | 3 | 84 | | | 8.5 | | 226 | 18.8 | 20 | 0.78 | | | | | | | | |
| 4,000 | 0 | 0.5 | 0.3 | | 60 | | | 6 | | 100 | 8.3 | 9 | 0.78 | | | | | | | | |
| 0 | 0 | 0 | 0 | | 12 | | | 2 | | 0 | | | | | | | | | | | |
| 748,606 | 49,761 | N/A | 476 | 52 | 5,647 | 1,160 | 2,870 | 384 | 20 | 16,467 | 1,406 | 1,728 | 0.92 | 716 | 28 | 307 | 0 | 36 | 407 | 40 | 60 |
| 1,032,402 | 65,704 | N/A | 674 | 57 | 10,500 | 1,160 | 5,195 | 644 | 23 | 21,761 | 1,847 | 2,285 | 0.92 | 806 | 31 | 307 | 0 | 42 | 717 | 56 | 105 |

2

RS)

| Cooling Type (Est. Cond Flows/hp) | | | | | | | | | Cooling Equipment | System Totals | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHW Water(gpm) | CHW Water(hp) | Cond Water(gpm) | Cond Water(hp) | CHW Air(hp) | DX-Cond Water(gpm) | DX-Cond Water(hp) | DX Air(hp) | MCA-CHW Water(gpm) | Field Data/Reference/(Location) | Total (hp) | Total (kw) | HVAC Item |
| | | | | | 45 | Tower 1 | Tower 1 | | Compressor in MR-21 & tower on roof | 25.0 | 18.7 | 94 |
| | | | | | 15 | Tower 1 | Tower 1 | | Liebert Unit in 2D106 & tower on roof | 9.0 | 6.7 | 95 |
| | | | | | | | | 46 | Plant Chilled Water @ 55 degrees F | 18.5 | 13.8 | 96 |
| 73 | 3 | 91 | Tower 2 | Tower 2 | | | | | Compressor in MR-21 & tower on roof | 37.8 | 28.2 | 97 |
| | | | | | | | | 45 | Plant Chilled Water @ 55 degrees F | 30.1 | 22.5 | 98 |
| | | | | | — | | 3 | | Cargo Packaged AHU/AC cond on roof | 59.7 | 44.5 | 99 |
| | | | | | 60 | Tower 2 | Tower 2 | | Packaged Unit in MR-22 & tower on roof | 39.9 | 29.7 | 100 |
| | | | | | | | | 86 | Plant Chilled Water @ 55 degrees F | 35.3 | 26.3 | 101 |
| | | | | | | | | | N/A | 0.0 | 0.00 | 102 |
| | | | | | 45 | Tower 3 | Tower 3 | | Compressor in MR-23 & condenser on roof | 27.5 | 20.5 | 103 |
| | | | | | | | | 74 | Plant Chilled Water @ 55 degrees F | 52.9 | 39.5 | 104 |
| | | | | | | | | 39 | Plant Chilled Water @ 55 degrees F | 15.8 | 11.8 | 105 |
| 72 | 3 | 90 | Tower 3 | Tower 3 | | | | | Compressor in MR-23 & tower on roof | 50.3 | 37.5 | 106 |
| 59 | 2 | | | 3 | | | | | Pack Carrier Air Cooled Chiller on roof | 30.1 | 22.4 | 107 |
| | | | | | 23 | Tower 3 | Tower 3 | | Packaged Unit in 2C325 & tower on roof | 13.1 | 9.8 | 108 |
| | | | | | | | 3 | | Compressor in 2D330 & cond on roof | 33.2 | 24.8 | 109 |
| | | | | | 15 | Tower 4 | Tower 4 | | Liebert Unit in 2D332 & tower on roof | 9.0 | 6.7 | 110 |
| | | | | | 6 | Tower 4 | Tower 4 | | Packaged Unit in 2D337 & tower on roof | 3.5 | 2.6 | 111 |
| | | | | | | | | 44 | Plant Chilled Water @ 55 degrees F | 29.6 | 22.1 | 112 |
| | | | | | | | | 91 | Plant Chilled Water @ 55 degrees F | 37.5 | 28.0 | 113 |
| | | | | | | | | 28 | Plant Chilled Water @ 55 degrees F | 18.6 | 13.9 | 114 |
| | | | | | 15 | Tower 4 | Tower 4 | | Datac Unit in 2C405 & tower on roof | 8.5 | 6.3 | 115 |
| | | | | | 15 | Tower 4 | Tower 4 | | Datac Unit in 2C407 & tower on roof | 8.5 | 6.3 | 116 |
| | | | | | | | | 45 | Plant Chilled Water @ 55 degrees F | 18.5 | 13.8 | 117 |
| | | | | | 60 | Tower 4 | Tower 4 | 24 | PCW @ 55F-Comp in MR25/tower on roof | 38.0 | 28.4 | 118 |
| | | | | | | | | 45 | Plant Chilled Water @ 55 degrees F | 10.1 | 7.6 | 119 |
| | | | | | | | | 21 | Plant Chilled Water @ 55 degrees F | 8.6 | 6.4 | 120 |
| | | | | | | | | | N/A | 0.00 | 0.00 | 121 |
| | | | | | | | | 38 | Plant Chilled Water @ 55 degrees F | 26.0 | 19.4 | 122 |
| | | | | | | | | 23 | Plant Chilled Water @ 55 degrees F | 16.4 | 12.3 | 123 |
| | | | | | 30 | Tower 1 | Tower 1 | | Compressor in 3D114 & tower on roof | 19.9 | 14.9 | 124 |
| | | | | | | | | 36 | Plant Chilled Water @ 55 degrees F | 25.4 | 19.0 | 125 |
| | | | | | | | | 24 | Plant Chilled Water @ 55 degrees F | 19.6 | 14.6 | 126 |
| | | | | | | | 1.5 | | Trane Unit in 3C141 & condenser on roof | 12.5 | 9.3 | 127 |
| | | | | | 21 | Tower 1 | Tower 1 | | Liebert Unit in 2C407 & tower on roof | 11.5 | 8.6 | 128 |
| | | | | | | | | 105 | Plant Chilled Water @ 55 degrees F | 43.0 | 32.1 | 129 |
| | | | | | | | | | N/A | 0.0 | 0.00 | 130 |
| | | | | | | | 8 | | York Comp in MR-33 & condenser on roof | 87.1 | 65.0 | 131 |
| 30 | 1 | | | 2 | | | | | Trane Chiller in MR23 & condenser on roof | 20.9 | 15.6 | 132 |
| | | | | | | | | 71 | Plant Chilled Water @ 55 degrees F | 49.1 | 36.6 | 133 |
| | | | | | | | | 39 | Plant Chilled Water @ 55 degrees F | 15.8 | 11.8 | 134 |
| 150 | 6 | | | 10 | | | | | Climatrol Chiller in MR34 & cond on roof | 95.8 | 71.5 | 135 |
| | | | | | | | | 37 | Plant Chilled Water @ 55 degrees F | 25.9 | 19.3 | 136 |
| | | | | | | | | 91 | Plant Chilled Water @ 55 degrees F | 37.5 | 28.0 | 137 |
| | | | | | Drycooler | 1.5 | 1.5 | | Liebert(located on roof) | 14.5 | 10.8 | 138 |
| | | | | | Drycooler | 1.5 | 1.5 | | Liebert(located on roof) | 14.5 | 10.8 | 139 |
| | | | | | Drycooler | 2.0 | 2.3 | | Liebert(located on roof) | 22.3 | 16.6 | 140 |
| | | | | | Drycooler | 1.5 | 1.5 | | Liebert(located on roof) | 14.5 | 10.8 | 141 |
| | | | | | Drycooler | 1.5 | 1.5 | | Liebert(located on roof) | 14.5 | 10.8 | 142 |
| | | | | | Drycooler | 1.5 | 1.5 | | Liebert(located on roof) | 20.0 | 14.9 | 143 |
| | | | | | Drycooler | 2.0 | 2.3 | | Liebert(located on roof) | 22.3 | 16.6 | 144 |
| | | | | | Drycooler | 3.0 | 3.0 | | Liebert(located on roof) | 31.0 | 23.1 | 145 |
| | | | | | Drycooler | 3.0 | 3.0 | | Liebert(located on roof) | 31.0 | 23.1 | 146 |
| | | | | | | | | 44 | Plant Chilled Water @ 55 degrees F | 18.1 | 13.5 | 147 |
| | | | | | | | | 38 | Plant Chilled Water @ 55 degrees F | 27.2 | 20.3 | 148 |
| | | | | | | | | 10 | Plant Chilled Water @ 55 degrees F | 7.0 | 5.2 | 149 |
| | | | | | | | | 21 | Plant Chilled Water @ 55 degrees F | 8.6 | 6.4 | 150 |
| | | | | | | | | | N/A | 0.00 | 0.00 | 151 |
| 101 | 4 | 127 | Tower 1 | Tower 1 | | | | | Compressor in MR-41 & tower on roof | 53.9 | 40.2 | 152 |
| 93 | 4 | | | 10 | | | | | Common Bohn Chiller on roof | 131.2 | 97.9 | 153 |
| 56 | 2 | | | 5 | | | | | Common Bohn Chiller on roof | 83.7 | 62.4 | 154 |
| 37 | 1 | | | 3 | | | | | Common Bohn Chiller on roof | 50.1 | 37.4 | 155 |
| 45 | 2 | | | 3 | | | | | Carrier Chiller on roof | 35.3 | 26.3 | 156 |
| | | | | | | | | 42 | Plant Chilled Water @ 55 degrees F | 28.9 | 21.5 | 157 |
| | | | | | | | | 31 | Plant Chilled Water @ 55 degrees F | 22.9 | 17.1 | 158 |
| | | | | | | | | 91 | Plant Chilled Water @ 55 degrees F | 37.5 | 28.0 | 159 |
| | | | | | | | | | N/A | 0.0 | 0.00 | 160 |
| | | | | | (2)Drycoolers | 8 | 6 | | (2) Common Bohn units(located on roof) | 32.0 | 23.9 | 161 |
| | | | | | - | - | - | - | (2) Common Bohn units(located on roof) | 17.0 | 12.7 | 162 |
| | | | | | - | - | - | - | (2) Common Bohn units(located on roof) | 17.0 | 12.7 | 163 |
| | | | | | - | - | - | - | (2) Common Bohn units(located on roof) | 17.0 | 12.7 | 164 |
| | | | | | - | - | - | - | (2) Common Bohn units(located on roof) | 17.0 | 12.7 | 165 |
| | | | | | - | - | - | - | (2) Common Bohn units(located on roof) | 17.0 | 12.7 | 166 |
| | | | | | - | - | - | - | (2) Common Bohn units(located on roof) | 25.0 | 18.7 | 167 |
| | | | | | - | - | - | - | (2) Common Bohn units(located on roof) | 8.5 | 6.3 | 168 |
| | | | | | - | - | - | - | (2) Common Bohn units(located on roof) | 8.5 | 6.3 | 169 |
| | | | | | | | | 47 | Plant Chilled Water @ 55 degrees F | 33.3 | 24.8 | 170 |
| | | | | | | | | 44 | Plant Chilled Water @ 55 degrees F | 18.1 | 13.5 | 171 |
| | | | | | 27 | Tower 3 | Tower 3 | | Liebert Unit in 4D308 & tower on roof | 17.0 | 12.7 | 172 |
| | | | | | 30 | Tower 3 | Tower 3 | | Edpac Unit in 4C317 & tower on roof | 18.0 | 13.4 | 173 |
| | | | | | Drycooler | 2.0 | 2.3 | | Liebert(located on roof) | 22.3 | 16.6 | 174 |
| | | | | | Drycooler | 1.5 | 1.5 | | Liebert(located on roof) | 14.5 | 10.8 | 175 |
| | | | | | Drycooler | 1.5 | 1.5 | | Liebert(located on roof) | 14.5 | 10.8 | 176 |
| | | | | | Drycooler | 1.5 | 1.5 | | Liebert(located on roof) | 14.5 | 10.8 | 177 |
| | | | | | | | | 30 | Plant Chilled Water @ 55 degrees F | 19.5 | 14.5 | 178 |
| | | | | | | | | 97 | Plant Chilled Water @ 55 degrees F | 39.8 | 29.7 | 179 |
| | | | | | Drycooler | 2.0 | 2.3 | | Liebert(located on roof) | 22.3 | 16.6 | 180 |
| | | | | | Drycooler | 2.0 | 2.3 | | Liebert(located on roof) | 22.3 | 16.6 | 181 |
| | | | | | Drycooler | 2.0 | 2.3 | | Liebert(located on roof) | 22.3 | 16.6 | 182 |
| | | | | | Drycooler | 1.5 | 1.5 | | Liebert(located on roof) | 14.5 | 10.8 | 183 |
| | | | | | Drycooler | 2.0 | 2.3 | | Liebert(located on roof) | 22.3 | 16.6 | 184 |
| | | | | | Drycooler | 2.0 | 2.3 | | Liebert(located on roof) | 22.3 | 16.6 | 185 |
| | | | | | Drycooler | 1.5 | 1.5 | | Liebert(located on roof) | 11.5 | 8.6 | 186 |
| | | | | | | | | 29 | Plant Chilled Water @ 55 degrees F | 19.5 | 14.5 | 187 |
| | | | | | | | | 48 | Plant Chilled Water @ 55 degrees F | 19.9 | 14.8 | 188 |
| | | | | | | | | 44 | Plant Chilled Water @ 55 degrees F | 32.7 | 24.4 | 189 |
| | | | | | | | | 22 | Plant Chilled Water @ 55 degrees F | 9.0 | 6.7 | 190 |
| | | | | | | | | | N/A | 0.0 | 0.0 | 191 |
| 716 | 28 | 307 | 0 | 36 | 407 | 46 | 60 | 1,689 | | 2,453 | 1,830 | 1.30 |
| 806 | 31 | 307 | 0 | 42 | 717 | 56 | 105 | 2,028 | | 3,280 | 2,447 | 1.33 |

3

### Table 3.4.1.3, Building 2706 Chiller Schedule

| Tag # | Mfg. | Rating (tons) | CHW (gpm) | CHW Supply | CHW Return | Cond. (gpm) | Comp. (HP) | Comp. (kW) | Comment |
|---|---|---|---|---|---|---|---|---|---|
| CH-1 | Trane | 690 | 1,656 | 55°F | 65°F | 2,043 | 721 | 538 | Rated at .78 kW/ton |
| CH-2 | Trane | 690 | 1,656 | 55°F | 65°F | 2,043 | 721 | 538 | Rated at .78 kW/ton |

### Table, 3.4.1.4, Buildings 2700/2706 Cooling Towers

| Tag # | Mfg. | Equipment Served | Rating (tons) | Cond. (gpm) | Fan (hp) | Comp. (kW) | Comment |
|---|---|---|---|---|---|---|---|
| CT-1 (2706) | B.A.C. | MCA Chillers | 1,380 | 4,086 | 4@20 | 4@14.9 | (4) cell, (1) single speed fans |
| CT-1 | Thermal Care | Misc. chillers & DX equip. | 200 | 600 | 7.5 | 5.6 | fiberglass tower, (1) single speed fan |
| CT-2 | Thermal Care | Misc. chillers & DX equip. | 200 | 600 | 7.5 | .5.6 | fiberglass tower, (1) single speed fan |
| CT-3 | B.A.C. | Misc. chillers & DX equip. | 210 | 630 | 10 | 7.5 | to be replaced w/ Thermal Care unit |
| CT-4 | B.A.C. | Misc. chillers & DX equip. | 210 | 630 | 10 | 7.5 | to be replaced w/ Thermal Care unit |
| CT-5 | B.A.C. | Misc. chillers & DX equip. | --- | --- | -- | --- | to be removed |

## Table, 3.4.1.5, Building 2700 & 2706 Primary Pump Schedule

| Tag # | Mfg. | Building Service | Flow (gpm) | Head (ft) | Motor (hp) | Motor (kW) | Comment |
|---|---|---|---|---|---|---|---|
| CHWP-1 | Allis-Chalmers | MCA Chilled Water | 1,656 | 172 | 100 | 74.6 | Building 2706 |
| CHWP-2 | Allis-Chalmers | MCA Chilled Water | 1,656 | 172 | 100 | 74.6 | Building 2706 |
| CHWP-3 | Allis-Chalmers | MCA Chilled Water | 1,656 | 172 | 100 | 74.6 | Building 2706 |
| HWP-1 | Allis-Chalmers | MCA Hot Water | 455 | 90 | 15 | 11.2 | Building 2706 |
| HWP-2 | Allis-Chalmers | MCA Hot Water | 455 | 90 | 15 | 11.2 | Building 2706 |
| HWP-3 | Allis-Chalmers | MCA Hot Water | 455 | 90 | 15 | 11.2 | Building 2706 |
| CWP-1 | Allis-Chalmers | Bldg 2706 Tower | 2,043 | 35 | 25 | 18.7 | Bldg 2706 Cooling Tower pump |
| CWP-2 | Allis-Chalmers | Bldg 2706 Tower | 2,043 | 35 | 25 | 18.7 | Bldg 2706 Cooling Tower pump |
| CWP-3 | Allis-Chalmers | Bldg 2706 Tower | 2,043 | 35 | 25 | 18.7 | Bldg 2706 Cooling Tower pump |
| CT1P-1 | PACO | Misc. Chiller & DX equip. | 325 | 110 | 20 | 14.9 | Bldg 2700 Cooling Tower pump |
| CT1P-2 | PACO | Misc. Chiller & DX equip. | 325 | 110 | 20 | 14.9 | Bldg 2700 Cooling Tower pump |
| CT2P-1 | PACO | Misc. Chiller & DX equip. | 325 | 110 | 20 | 14.9 | Bldg 2700 Cooling Tower pump |
| CT2P-2 | PACO | Misc. Chiller & DX equip. | 325 | 110 | 20 | 14.9 | Bldg 2700 Cooling Tower pump |
| CT3P-1 | PACO | Misc. Chiller & DX equip. | 325 | 110 | 20 | 14.9 | Bldg 2700 Cooling Tower pump |
| CT3P-2 | PACO | Misc. Chiller & DX equip. | 325 | 110 | 20 | 14.9 | Bldg 2700 Cooling Tower pump |
| CT4P-1 | PACO | Misc. Chiller & DX equip. | 325 | 110 | 20 | 14.9 | Bldg 2700 Cooling Tower pump |
| CT4P-2 | PACO | Misc. Chiller & DX equip. | 325 | 110 | 20 | 14.9 | Bldg 2700 Cooling Tower pump |
| FWP-1 | Aurora | Boiler Feedwater | 100 | 457 | 25 | 18.7 | Boiler Plant |
| FWP-2 | Aurora | Boiler Feedwater | 100 | 457 | 25 | 18.7 | Boiler Plant |
| FWP-3 | Worthington | Boiler Feedwater | 100 | 457 | 25 | 18.7 | Boiler Plant |
| FWP-4 | Ingersoll-Rand | Boiler Feedwater | 100 | 457 | 25 | 18.7 | Boiler Plant |
| CP-1 | Aurora | Condensate | 100 | 100 | 5 | 3.7 | Bldg 2700 Main Riser |

| Tag # | Mfg. | Building Service | Flow (gpm) | Head (ft) | Motor (hp) | Motor (kW) | Comment |
|---|---|---|---|---|---|---|---|
| CP-2 | Aurora | Condensate | 100 | 100 | 5 | 3.7 | Bldg 2700 Main Riser |
| CP-7 | Aurora | Condensate | 100 | 100 | 5 | 3.7 | Bldg 2700 Main Riser |
| CP-8 | Aurora | Condensate | 100 | 100 | 5 | 3.7 | Bldg 2700 Main Riser |
| CP-1 (New) | | Condensate | 60 | 93 | 6 | 4.4 | Bldg 2706 |
| Misc. Pumps Total | | Various | --- | --- | 20 | 14.9 | Condensate, domestic hot water, chemical feed, etc. |

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 EXHAUST FAN SUMMARY

TABLE 3.4.1.6

| Item | Roof Dwg. Designation | Fan Type | Field Data/Reference | Size | Flowrate (CFM) | Static P (in w.g.) | Energy (HP) | Area Served in CFM Basement | 1st Floor | 2nd Floor | 3rd Floor | 4th Floor | Area Served | Connected Load (KW) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A1 | Scrubber | AAF Colag | 18" Dia. | 3,534 | 4 | 4.0 | | | | | 3,534 | Room 4D110 | 3 02 |
| 2 | A2 | Exhaust | Trane CF13A | | 1,500 | 0 4 | 0 5 | | | | | 1,500 | Room 4D110 | 0 37 |
| 3 | A3 | Exhaust | Dayton | 24"Dia | 6,000 | 0 6 | 2.0 | | | 2,000 | 2,000 | 2,000 | MR 21, 31, & 41 | 1 49 |
| 4 | A5 | Scrubber | AAF | Size 84 | 7 945 | 8 | 20 0 | | | | | 7,945 | Room 4D120 | 14 92 |
| 5 | A6 | Scrubber | Duall (Met-Pro) Model NH40 | | 5,600 | 5 1 | 7.5 | | | | | 5,600 | Room 4D120 | 5 59 |
| 6 | A8 | Exhaust | EV-1 | | 7,860 | 0 5 | 2 0 | | | 2,620 | 2,620 | 2,620 | East End Toilets | 1.49 |
| 7 | A11 | Exhaust | Car-Mon Model CMB-35 | | 7,945 | 2 | 5.0 | | | | | 7,945 | 4D130 - Toxic Gas | 3 73 |
| 8 | A12 | Exhaust | EV-2 | | 4,368 | 0.5 | 1 0 | | | | | 4,368 | Substation 4 | 0 75 |
| 9 | A13 | Exhaust | EV-7 (2-speed at 18,000 & 9,000 CFM) | | 18,000 | 0.75 | 3.0 | | 18,000 | | | | 1st Floor Audio/Visual | 2.24 |
| 10 | A14 | Scrubber | Duall (Met-Pro) Model NH36.5 | | 4,200 | 6 | 10.0 | | | | | 4,200 | Room 4D130 | 7.46 |
| 11 | A15 | Scrubber | American Standard Type S | Size 122 | 3,973 | 4 | 5.0 | | | | | 3,973 | Room 4D108 | 3.73 |
| 12 | A17 | Exhaust | EV-39 | 10"x12" | 250 | 6 | 0.5 | | | 250 | | | Room 2D134 | 0 37 |
| 13 | A18 | Scrubber | Duall (Met-Pro) Model NH36.5 | | 4,200 | 6 | 10.0 | | | 4,200 | | | Room 2D134 | 7 46 |
| 14 | A19 | Exhaust | None | 12"X15" | 1,700 | 0 4 | 0.5 | | | 1,700 | | | Room 2D129 | 0 37 |
| 15 | A20 | Exhaust | None | 3"X5" | 200 | 1 | 0.1 | | | | | 200 | Room 4D130 | 0 06 |
| 16 | A21 | Exhaust | None | 3"X5" | 200 | 1 | 0.1 | | | | | 200 | Room 4D130 | 0.06 |
| 17 | A29 | Scrubber | Duall (Met-Pro) Model SI10 | | 1,500 | 4 | 2.0 | | | | | 1,500 | Room 4D130 | 1 47 |
| 18 | A31 | Scrubber | Duall (Met-Pro) Model NH36.5 | | 4,200 | 6 | 10.0 | | | 4,200 | | | Room 2D202 | 7.46 |
| 19 | A32 | Exhaust | None | | 500 | 1 | 0 2 | | | 500 | | | Room 2D202 | 0. 15 |
| 20 | A33 | Exhaust | EV-54 (Guess) | | 6,000 | 0.6 | 2.0 | | | 2,000 | 2,000 | 2,000 | MR 22, 32, & 42 | 1 49 |
| 21 | A34 | Exhaust | None | 3"Dia | 150 | 1 | 0. 1 | | | | | | Room 4D130 | 0 04 |
| 22 | B1 | Exhaust | None (Not In Service or NIS) | 10"x12" | 1,500 | 0.4 | 0.5 | | | | | | Unknown | 0 37 |
| 23 | B1A | Exhaust | None (NIS) | 3"Dia | 150 | 1 | 0.06 | | | | | | Unknown | 0 04 |
| 24 | B4 | Exhaust | Trane CF13 | 9"x12" | 1,200 | 1 | 0.5 | | | | 1200 | | 3rd Floor (Guess) | 0 37 |
| 25 | B5 | Exhaust | Trane U10K5 | 8"x12" | 1,000 | 1 | 0.5 | | | | | 1000 | Room 4C204 | 0 37 |
| 26 | B6 | Exhaust | EV-66A | | 2,000 | 3 5 | 3 | | | | | 2000 | 4th Floor | 2 24 |
| 27 | B7 | Exhaust | EV-32 | | 500 | 1.4 | 0.33 | | | | | 500 | 4th Floor | 0 25 |
| 28 | B9 | Exhaust | EV-4 | | 5,000 | 0.5 | 1 | | | 5000 | | | 2nd Floor | 0 75 |
| 29 | B9A | Exhaust | EV-31 | | 500 | 1.4 | 0.33 | | | | | 500 | 4th Floor | 0 25 |
| 30 | B10 | Exhaust | EV-66 | | 2,000 | 3.5 | 3 | | | 2000 | | | 2nd Floor | 2 24 |
| 31 | B11 | Exhaust | EV-67 | | 1,000 | 1.5 | 0.5 | | | 1000 | | | 2nd Floor | 0 37 |
| 32 | B12 | Exhaust | EV-26 | | 2,000 | 2 | 2 | | | 2000 | | | 2nd Floor | 1.49 |
| 33 | B13 | Exhaust | EV-67A (NIS) | | 1,000 | 1.5 | 0.5 | | | NIS | | | 2nd Floor | 0 37 |
| 34 | B14 | Exhaust | EV-99 (NIS) | | | | | | | NIS | | | 2nd Floor | 0 00 |
| 35 | B15 | Exhaust | EV-20 | | 500 | 1.4 | 0.33 | | | | 500 | | 3rd Floor | 0 25 |
| 36 | B17 | Exhaust | Trane CUBA-163 (NIS) | | 3,178 | 2 | 2 | | | | | | Unknown | 1.49 |
| 37 | B18 | Exhaust | Trane CUBA-163 (NIS) | | 3,178 | 2 | 2 | | | | | | Unknown | 1.49 |
| 38 | B19 | Exhaust | Trane CUBA-163 (NIS) | | 3,178 | 2 | 2 | | | | | | Unknown | 1.49 |
| 39 | B20 | Exhaust | EV-23 (NIS) | | 500 | 1.4 | 0.33 | | | NIS | | | 2nd Floor | 0.25 |
| 40 | B21 | Exhaust | EV-25 | | 1,500 | 7.5 | 3 | | | 1500 | | | 2nd Floor | 2 24 |
| 41 | B22 | Exhaust | EV-22 (NIS) | | 3,000 | 2.75 | 2 | | | NIS | | | 2nd Floor | 1.49 |
| 42 | B23 | Exhaust | EV-103 | | 1,000 | 0.75 | 0.5 | | | 1000 | | | 2nd Floor | 0 37 |
| 43 | B24 | Exhaust | EV-102 | | 500 | 0.75 | 0.25 | | | 500 | | | 2nd Floor | 0 19 |
| 44 | B25 | Exhaust | EV-84 (NIS) | | 1,000 | 1.2 | 0.5 | | | | | NIS | 4th Floor | 0 37 |
| 45 | B26 | Exhaust | EV-100 (NIS) | | | | | | | | | | Unknown | 0 00 |



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| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 36 | B17 | Exhaust | Trane CUBA-163 (NIS) | | 3,178 | 2 | 2 | | | | | | Unknown | 1.49 |
| 37 | B18 | Exhaust | Trane CUBA-163 (NIS) | | 3,178 | 2 | 2 | | | | | | Unknown | 1.49 |
| 38 | B19 | Exhaust | Trane CUBA-163 (NIS) | | 3,178 | 2 | 2 | | | | | | Unknown | 1.49 |
| 39 | B20 | Exhaust | EV-23 (NIS) | | 500 | 1.4 | 0.33 | | | NIS | | | 2nd Floor | 0.25 |
| 40 | B21 | Exhaust | EV-25 | | 1,500 | 7.5 | 3 | | | 1500 | | | 2nd Floor | 2.24 |
| 41 | B22 | Exhaust | EV-22 (NIS) | | 3,000 | 2.75 | 2 | | | NIS | | | 2nd Floor | 1.49 |
| 42 | B23 | Exhaust | EV-103 | | 1,000 | 0.75 | 0.5 | | | 1000 | | | 2nd Floor | 0.37 |
| 43 | B24 | Exhaust | EV-102 | | 500 | 0.75 | 0.25 | | | 500 | | | 2nd Floor | 0.19 |
| 44 | B25 | Exhaust | EV-84 (NIS) | | 1,000 | 1.2 | 0.5 | | | | | NIS | 4th Floor | 0.37 |
| 45 | B26 | Exhaust | EV-100 (NIS) | | | | | | | | | | Unknown | 0.00 |
| 46 | B28 | Exhaust | Dead Unit | | | | | | | | | | Unknown | 0.00 |
| 47 | B33 | Exhaust | EV-25A | 6" Dia | 300 | 1 | 0.5 | | | 300 | | | 2nd Floor | 0.37 |
| 48 | C2 | Exhaust | EV-127 | | 4,500 | 0.25 | 0.5 | | | 1500 | 1500 | 1500 | MR 23, 33, & 43 | 0.37 |
| 49 | C4 | Exhaust | EV-86 (NIS) | | 1,000 | 1.2 | 0.5 | | NIS | | | | 1st Floor | 0.37 |
| 50 | C11 | Exhaust | EV-110 | | 250 | 0.75 | 0.1 | | | 250 | | | 2nd Floor | 0.07 |
| 51 | C12 | Exhaust | EV-108 | | 1,000 | 1.3 | 0.75 | | | 1000 | | | 2nd Floor | 0.56 |
| 52 | C13 | Scrubber | Duall (Met-Pro) | | 3,000 | 4 | 5 | | | 3,000 | | | Room 2D202 | 3.52 |
| 53 | C15 | Exhaust | EV-89 (NIS) | | 1,000 | 6.5 | 2 | | NIS | | | | 1st Floor | 1.49 |
| 54 | C16 | Exhaust | EV-96 | | 1,000 | 1.5 | 0.5 | | 1000 | | | | 1st Floor | 0.37 |
| 55 | C17 | Exhaust | EV-88 | | 500 | 6.5 | 1 | | 500 | | | | 1st Floor | 0.75 |
| 56 | D6 | Exhaust | EV-108A (NIS) | | 1,000 | 1.3 | 0.75 | | | NIS | | | 2nd Floor | 0.56 |
| 57 | D11 | Exhaust | None (NIS) | 6"X8" | 650 | 1 | 0.3 | | | | | | Unknown | 0.19 |
| 58 | D12 | Exhaust | None (NIS) | 6"X6" | 500 | 1 | 0.2 | | | | NIS | | 3rd Floor | 0.15 |
| 59 | D21 | Exhaust | EV-125 | | 6,600 | 0.4 | 0.75 | | | | | 6600 | 4D336 | 0.56 |
| 60 | E1 | Exhaust | RF-1 (American) | BIB 122L | 1,500 | 1 | 0.5 | | | | 1,500 | | 3rd Floor (Guess) | 0.37 |
| 61 | E5 | Exhaust | None (NIS or Dead Unit ?) | | | | | | | | | | Unknown | 0.00 |
| 62 | E10 | Exhaust | New York Blower (NIS or Dead ?) | Size 490 | | | | | | | | | Unknown | 0.00 |
| 63 | E12 | Exhaust | Dead Unit | | | | | | | | | | Unknown | 0.00 |
| 64 | E18 | Exhaust | EV-73 | | 1,500 | 1.1 | 0.75 | 1500 | | | | | Basement | 0.56 |
| 65 | E22 | Exhaust | EV-73 (NIS) | | 1,300 | 0.3 | 0.33 | | NIS | | | | 1st Floor | 0.25 |
| 66 | E23 | Exhaust | RF-2 | 6"x10" | 800 | 1 | 0.25 | | | | 800 | | 3rd Floor (Guess) | 0.19 |
| 67 | E25 | Exhaust | RF-3 | 12"x15" | 2,500 | 1 | 0.75 | | | | | 2,500 | 4th Floor (Guess) | 0.56 |
| 68 | E32 | Exhaust | None (NIS) | 12"x18" | 3,000 | 1 | 1 | | | | 3,000 | | 3rd Floor (Guess) | 0.75 |
| 69 | E35 | Exhaust | RF-4 (NIS) | | 3,000 | 1 | 1 | | | | | NIS | 4D336 | 0.75 |
| 70 | E36 | Exhaust | Dead Unit | | | | | | | | | | Unknown | 0.00 |
| 71 | E37 | Exhaust | EV-101 | | 1,000 | 0.6 | 0.5 | | 1000 | | | | 1st Floor (Guess) | 0.37 |
| 72 | E39 | Exhaust | None | 15"X20" | 4,000 | 1.3 | 2 | | | | 4,000 | | 3rd Floor (Guess) | 1.53 |
| 73 | E40 | Exhaust | None (NIS) | 6"X8" | 650 | 1 | 0.3 | | | | NIS | | 3rd Floor (Guess) | 0.19 |
| 74 | - | Exhaust | EV-57 (Located in MR-12) | | 825 | - | 0.05 | | 825 | | | | MR-12 | 0.04 |
| 75 | - | Exhaust | EV-58 (Located in MR-12) | | 825 | - | 0.05 | | 825 | | | | MR-12 | 0.04 |
| 76 | - | Exhaust | EV-68 (Located in Substation #3) | | 5,300 | - | 0.25 | | 5,300 | | | | Substation #3 | 0.19 |
| 77 | - | Exhaust | EV-79 (Located in Kitchen) | | 27,200 | 0.75 | 7.5 | 27,200 | | | | | Kitchen exhaust system | 5.60 |
| 78 | - | Exhaust | EV-82 (Located in Substation #7) | | 6,000 | 0.4 | 1 | 6,000 | | | | | Substation #7 | 0.75 |
| 79 | E40 | Exhaust | EV-98 (Located in Substation #2 & 6) | | 6,000 | 0.4 | 1 | 6,000 | | | | | Substation #2 & 6 | 0.75 |
| | Totals | | | | 211,909 | | 140 | 40,700 | 27,450 | 36,520 | 19,120 | 62,185 | Running CFM Total = 185,975 | 105 |

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## Table 3.4.1.7, Building 2700 Miscellaneous Process Cooling & Support System Equipment

| Tag # | Mfg. | Service | Rating (tons) | Motor (hp) | Motor (kW) | Comments |
|---|---|---|---|---|---|---|
| | | Cafeteria Coolers (4) | 4.0 | 5.0 | 3.7 | Estimated |
| | | Cafeteria Refrigerator | 1.5 | 2.0 | 1.5 | Estimated |
| | | Cafeteria Refrigerator | 0.5 | 1.0 | 0.75 | Estimated |
| | | Cafeteria Freezer | 1.0 | 1.5 | 1.2 | Estimated |
| | Edwards | Process Chiller | 11.0 | 15.0 | 11.2 | Located on roof (100 sec) |

## 3.5 Miscellaneous Buildings

Steam produced by the Building 2700 boiler plant is also utilized within Buildings 2704, 2705, and 2715.

Building 2704 is a 7,100 square foot research and development facility built in 1963. The original building HVAC systems included multiple HVAC units serving test rooms, laboratories and support areas. The facility was renovated in 1974. Renovations included interior partition alterations, addition of a mechanical equipment room and alterations to the HVAC system.

Building cooling requirements incorporated single packaged, water cooled DX type cooling equipment with cooling towers located outdoors on the roof. Building heating requirements utilize steam as the primary heat source. Steam produced in Building 2700 is conveyed to Building 2704 via an underground pipe conduit system. Condensate return pumps in Building 2704 pump condensate back to Building 2700 thru the same underground conduit system. Steam pressure entering the building is approximately 80 psig, and is reduced through a pressure reducing station to meet individual building equipment requirements. Steam is utilized for building heat and outdoor air preheat requirements. Both space unit heaters and a steam coil in one air handler are utilized. Original building design included a steam to water heat exchanger providing hot water to finned tube radiation for perimeter space heating. Subsequent renovations included the relocation of the heat exchangers, the condensate receiver, and the electric water heater, which is used for domestic hot water. A valved cross-connection between the heating water and the electric water heater exists for unknown reasons. All original air handlers and a

few of the unit heaters were removed and replaced with one large unit capable of heating and cooling.

Advancing technology has necessitated changes in the test room HVAC equipment. Today's test chambers have independent integral systems which utilize few basic building utilities.

Building 2705 is a 47,592 square foot research and development facility built in 1972. No major renovation projects have occurred in this building. The original HVAC equipment and design concepts remain functional as constructed in 1972.

The building HVAC systems are constant temperature, constant volume supply air, with duct mounted terminal hot water reheat coils providing specific zone temperature control. Three (3) main HVAC units, located in the mechanical equipment room, supply air to the building. Associated return air fans either discharge air directly to the outdoors or to a common return air plenum prior to reintroduction into the HVAC units. Steam unit heaters are used to preheat outdoor air within the common return air/outdoor air plenum. Building cooling requirements are satisfied by two (2) air cooled water chillers located outdoors. Chilled water is pumped to the HVAC units and the chillers by pumps located within the mechanical equipment room.

As is the situation in Building 2704, steam produced in Building 2700 is utilized as the heat source for Building 2705 and to satisfy building outdoor air preheat requirements. Steam supply pressure is reduced within Building 2705

and utilized for outdoor air preheat coils and as the primary heat source for the building heating system steam to water heat exchanger. Hot water produced within this heat exchanger is pumped throughout the building to terminal reheat coils, miscellaneous space heating equipment, and to Building 2715 where hot water is the building heat source. Condensate pumps located within the mechanical equipment room pump condensate back to Building 2700 via the underground pipe conduit system. Domestic potable hot water needs are satisfied by electric water heaters. Presently this building is being evaluated as a possible candidate for a new geo-thermal heat pump system. Entech will not evaluate this option as part of this study.

Building 2715, built in 1988, is a 3,000 square foot warehouse facility associated with Building 2705. Hot water produced by the steam to water heat exchanger located within Building 2705 is pumped to this building thru underground piping conduits. Hot water unit heaters satisfy the open warehouse heating requirements while a duct mounted heating coil heats an office area. Air conditioning needs for the office area are satisfied by a split system DX cooling unit. An electric water heater is used for domestic hot water.

### 3.6 Domestic Hot Water (Building 2700)

Building 2700's domestic hot water is supplied from three (3) storage water heaters manufactured by Patterson-Kelley, Co. and located in the mechanical equipment room in the basement level next to the existing boilers. Steam is utilized as the heat source for the steam to water heat exchangers located within each storage tank. Each storage tank has a nominal storage capacity of 1,000

gallons, for a total nominal storage capacity of 3,000 gallons. Each water heater is capable of a nominal recovery rate of approximately 1,000 gallons per hour at a 100°F temperature rise. Domestic hot water circulation pumps maintain flow of hot water within the piping system. The number of circulation pumps was not verified by Entech. The pumps will be assumed to be maintained and operating. The horsepower requirements for these pumps were lumped together with other miscellaneous pumping estimated to be in Building 2700.

Domestic hot water for the building is used for restrooms and general cleaning needs. The original building system also served locker rooms and the Cafeteria/Kitchen. The Cafeteria/Kitchen facility utilizes independent water heating equipment to satisfy water heating requirements.

Note: Presently the building domestic hot water system is inoperable. Building personnel stated that the circulation pumps had recently failed and have not been replaced, and all three (3) storage water heaters are out of service with failed heat exchangers.

### 3.7 Controls (Building 2700)

Many of Building 2700 control systems were renovated during the 1982 MCA project. In general, building control systems are by the Barber Coleman Control Co., specialty areas such as cleanrooms have independent dedicated control systems. General building controls are local in nature with individual control panels located in close proximity with their respective HVAC equipment. Local control for MCA air handlers includes seven (7) day time clocks and space mounted temperature sensors. Less than half of the systems

are utilizing the clocks. The majority of the air handlers excluding the MCA units and the cleanroom units are assumed to be operating without timing devices being set and/or installed.

Building 2700 has a central Energy Management Control System (EMCS) used for limited monitoring only. The system is obsolete and for the most part unused or inoperable. Consideration for incorporating the majority of the HVAC systems in the building into an EMCS is beyond the scope of this study.

### 3.8 Food Preparation (Building 2700)

Meals: According to Cafeteria/Kitchen personnel, approximately 600 meals are prepared daily. The facility prepares breakfast and lunch five days a week. The cafeteria is open from 0630 hours to 1330 hours.

Equipment: The facility employs a mix of electric, gas and steam cooking appliances. Most of the larger appliances are gas-fired while the smaller convenience equipment is electrically operated. The following table lists the major cafeteria/kitchen appliances installed at this facility.

**Table 3.8.1, Major Kitchen Appliances**

| Type | Quantity | Type |
|---|---|---|
| Two Compartment Fryer | 2 | Gas |
| Two Section Griddle w/Oven | 1 | Gas |
| Two Tier Convection Oven | 1 | Gas |
| Six Burner Range w/Oven | 1 | Gas |
| Two Compartment Steamer | 1 | Steam |
| Steam Kettle | 1 | Steam |
| Steam Table | 1 | Steam |
| Food Warmer | 1 | Electric |
| Walk-in Cooler | 4 | Electric |
| Walk-in Freezer | 1 | Electric |
| Single Door Refrigerator | 1 | Electric |
| Three Door Refrigerator | 1 | Electric |
| Ice Maker | 1 | Electric |
| Dishwasher | 1 | Electric/Steam |

Domestic hot water needs for the cafeteria are satisfied by a gas fired water heater manufactured by the Rheem Manufacturing Co.. The water heater has a 91 gallon storage capacity and a recovery rate of 296 gallons per hour at a 100°F temperature rise. The dishwashing unit utilizes building steam directly injected into the wash water for the wash cycle and a steam booster heater is used for the rinse water to meet code dishwashing water temperature requirements.

## 3.9 Electrical (Building 2700)

Service: Power is supplied to Fort Monmouth by The Jersey Central Power and Light Company (JCP&L). JCP&L supplies centrally located substations, which are the property of the Government, with 34.5 kV delta underground feeders. Fort Monmouth is served under JCP&L's General Transmission Rate.

Transformers: Fort Monmouth's main substations transform JCP&L's 34.5 kV feeds to a Fort Monmouth underground distribution system at 12.5 kV. Building 2700 is serviced by the Hope Road/Charles Wood Area distribution system. Outside of Building 2700, two (2) 10,000 kVA unit substation transformers reduce the 12.5 kV distribution feed to 4160V. One (1) of these transformers is redundant and is used as a backup building feed in the event of an emergency. Within Building 2700 is a 4160V building distribution system which feeds seven (7) individual substation transformers located throughout the building. These individual transformers in turn provide secondary building distribution at 480V/277V, 3 phase, 60 Hz and 208V/120V, 3 phase, 60 Hz. The 480 volt distribution is provided to satisfy large equipment requirements. The 208 volt distribution is primarily used for building lighting systems, smaller equipment loads, and building receptacles.

Emergency Power: Building 2700 emergency power consists of two (2) 150 kW generators sets, one (1) 480 volt, 3 phase and one (1) 208 volt, 3 phase. The generator sets are located in the vicinity of the building primary switch gear on the basement floor level. The generator sets are fired with diesel fuel, a day tank located in an adjacent space stores fuel for generator use. A power monitor

located within an automatic transfer switch activates the generator set and switches the emergency power source to the building emergency equipment.

Lighting: In general, lighting systems for Building 2700 are predominately fluorescent type. Light fixtures vary in size and style utilizing 40 watt fluorescent lamps as the light source. Estimates in watts/sq ft are made for the various types of areas identified in Section 5.

### 3.10 Gas Service

Natural gas is supplied by the New Jersey Natural Gas Company of Wall, New Jersey. The service to Building 2700 was recently upgraded to meet the requirements for heating the building. The new service to Building 2700 is a 4" line branched from a new 6" header which was routed from the Hope Road main. In addition to the 4" branch, there are two (2) 2" lines to other buildings off the 6" header.

Other natural gas uses in Building 2700 include kitchen use for cooking, as a heat source for the second floor dry room de-humidification air handler located on the roof, and possibly for minor lab uses. The location of the meter is outside near the intersection of the 300 and 400 areas on the west side of Building 2700.

# 4.0 BILLING HISTORIES

## 4.1 General

For the most part, the energy analysis for this report is based upon data acquired for a 12-month period from the Spring 1994 through Spring 1995. Inconsistencies in available data beyond the Spring 1995 limited the history data for electricity and fuel oil deliveries to one (1) year. Gas billing and usage data was not provided except for enough information to determine an incremental rate.

Currently, Building 2700 is not individually metered for electricity. Electricity for Building 2700 is provided by the Hope Road/Charles Wood Area distribution system. This system also supports other buildings that include 2704, 2705, 2525, 2537, 2539, 2543, and 2566. Also connected to this distribution system are large residential areas of housing units and barracks. Utility support equipment for the Hope Road/Charles Wood Area is also connected to this service including street lights. Based on the size and type of the buildings, etc. connected to this service, it appears that Building 2700 will account for 50% or more of the total costs. Refer to Section 5.6.3.1 for more details.

Natural gas is metered at Building 2700 while No. 2 fuel oil is delivered on a monthly basis and consumption is tracked by boiler plant personnel on a daily/monthly basis. Steam production data was available for two (2) years and is documented in this section.

history for the Hope Road/Charles Wood Area which will be used as a guideline for estimating electrical energy costs. The estimated annual energy costs for Building 2700 will be estimated in Section 5 of this report for use in evaluating the ECOs in Section 6.

## 4.2 Electricity

Jersey Central Power & Light Company (JCP&L) provides power to Hope Road/Charles Wood Area under the GT (General Service Transmission) Rate. This rate is available to customers taking service at the transmission voltage of 34.5 kV. Table 4.2.1 on the following page displays the electric billing history of the Hope Road/Charles Wood Area distribution system for the year of May 1994 through April 1995. A copy of the electric bills are included in Appendix 8.2.

Note: The off-peak demands shown are provided by the electric company for information only with no impact to the costs. The associated off-peak reactive demand charge and variations in the electric rates from month to month affect the overall costs by about 2%. Refer to Section 4.3 for details about the determination of incremental rates for this study.

## Table 4.2.1
## Hope Rd./Charles Wood Area - Electric Billing History
## May 1994- April 1995
## JCP&L Rate - General Transmission

| *Month* | *Days* | *On-Peak Demand (kW)* | *Off-Peak Demand (kW)* | *Reactive Demand (kW)* | *On-Peak (kWh)* | *Off-Peak (kWh)* | *Total (kWh)* | *Cost ($)* | *Rate ($/kWh)* | *Usage (kWh/Day)* | *Energy (mmBtu)* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| May 1994 | 29 | 4,957 | 4,147 | 2,992 | 990,000 | 1,314,000 | 2,304,000 | $191,679 | $0.083 | 79,448 | 2,138 |
| June | 29 | 6,977 | 5,926 | 3,881 | 1,368,000 | 1,845,000 | 3,213,000 | $273,851 | $0.085 | 110,793 | 10,966 |
| July | 33 | 7,020 | 5,929 | 3,960 | 1,629,000 | 2,403,000 | 4,032,000 | $326,336 | $0.081 | 122,182 | 13,761 |
| August | 29 | 6,757 | 5,598 | 3,823 | 1,305,000 | 1,854,000 | 3,159,000 | $267,918 | $0.085 | 108,931 | 10,782 |
| September | 30 | 5,623 | 4,856 | 3,092 | 1,233,000 | 1,656,000 | 2,889,000 | $240,127 | $0.083 | 96,300 | 9,860 |
| October | 29 | 4,482 | 4,414 | 2,279 | 981,000 | 1,386,000 | 2,367,000 | $191,153 | $0.081 | 81,621 | 2,490 |
| November | 33 | 4,865 | 4,367 | 2,786 | 1,116,000 | 1,566,000 | 2,682,000 | $214,912 | $0.080 | 81,273 | 9,154 |
| December | 29 | 4,738 | 4,289 | 2,685 | 996,300 | 1,359,000 | 2,355,300 | $192,896 | $0.082 | 81,217 | 8,039 |
| January 1995 | 31 | 4,726 | 4,247 | 2,491 | 1,008,000 | 1,521,000 | 2,529,000 | $203,030 | $0.080 | 81,581 | 8,631 |
| February | 30 | 4,692 | 4,296 | 2,480 | 1,044,000 | 1,422,000 | 2,466,000 | $199,289 | $0.081 | 82,200 | 8,416 |
| March | 29 | 4,678 | 4,280 | 2,671 | 1,003,500 | 1,358,100 | 2,361,600 | $192,565 | $0.082 | 81,434 | 8,060 |
| April | 32 | 4,701 | 4,107 | 2,827 | 1,031,400 | 1,485,000 | 2,516,400 | $202,427 | $0.080 | 78,638 | 8,588 |
| Total | 363 | 64,216 | 56,456 | 35,967 | 13,705,200 | 19,169,100 | 32,874,300 | $2,696,183 | $0.082 | 90,563 | 112,200 |

### 4.2.1 Incremental Cost

Entech Engineering developed a Lotus spreadsheet computer program to determine the incremental costs for electricity. Using actual billing data, for both summer and winter month, usage and demand are entered into the program, and the bills are calculated. The computer calculations match the utility's bill.

To calculate the incremental cost for billing demand, the electric bill is re-calculated using one less kW of demand. The cost difference between the actual bill and the bill calculated with one less kW is considered to be the incremental cost for demand ($/kW).

The same procedure is performed for usage (kWh). The bill is calculated using one less kWh, with the difference in the two costs being the incremental usage cost ($/kWh). For this facility, the incremental cost for electricity is as follows:

**Table 4.2.1.1, Incremental Costs**

| *Incremental* | *Winter (Oct-April)* | *Summer (May-Sept)* |
|---|---|---|
| Demand, $/kW | $8.31 | $9.22 |
| Off-Peak, $/kWh | $0.06244 | $0.06256 |
| On-Peak, $/kWh | $0.07234 | $0.07246 |

The incremental costs will be used in calculations of the electric model as described in Section 2.

The use of incremental rates is reasonably accurate for calculating cost savings due to small changes (±25%) in demand and usage totals from existing levels. The use of incremental rates is less accurate in calculating cost savings with larger changes in demand and usage (>25%) and tends to underestimate savings slightly (usually < 2%). However, for the convenience of calculating the feasibility of various options, the use of incremental rates for demand and usage is usually accurate and in some cases slightly conservative (savings not over estimated) and is therefore prudent.

Copies of the calculations of the incremental costs, and monthly electric bills are included in the Attachments 8.3. Included in 8.4 is the rate structure used.

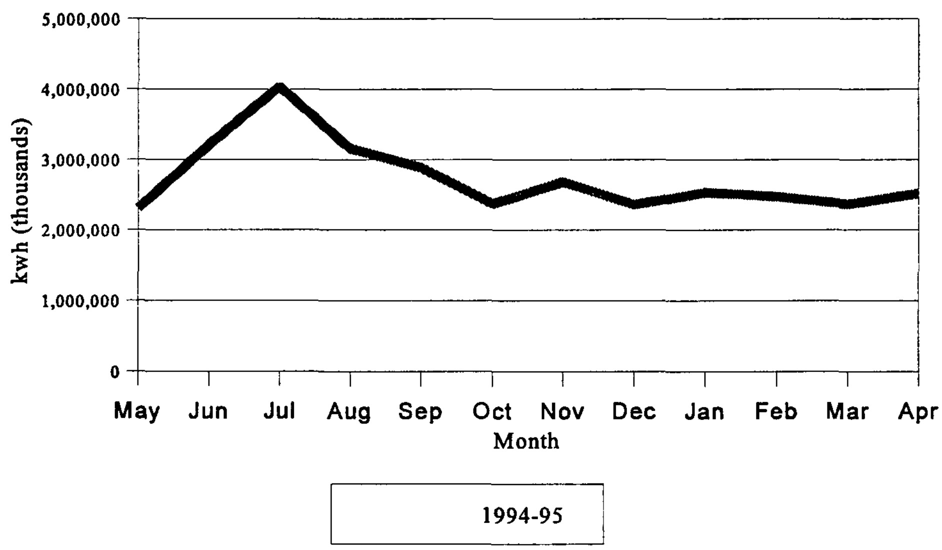
### 4.2.2 Electric Usage

Electric usage is measured in kilowatt hours (kWh). One kWh is equivalent to the usage of 1,000 watts of electricity for one hour. Figure 4.2.2.1 graphically shows electrical usage profile for the Hope Road/ Charles Wood Area distribution system for the period of May 1994 through April 1995.

The graph indicates that electric usage follows a cooling curve. This is evident from the increases seen during the summer.

Hope Road/Charles Wood Area

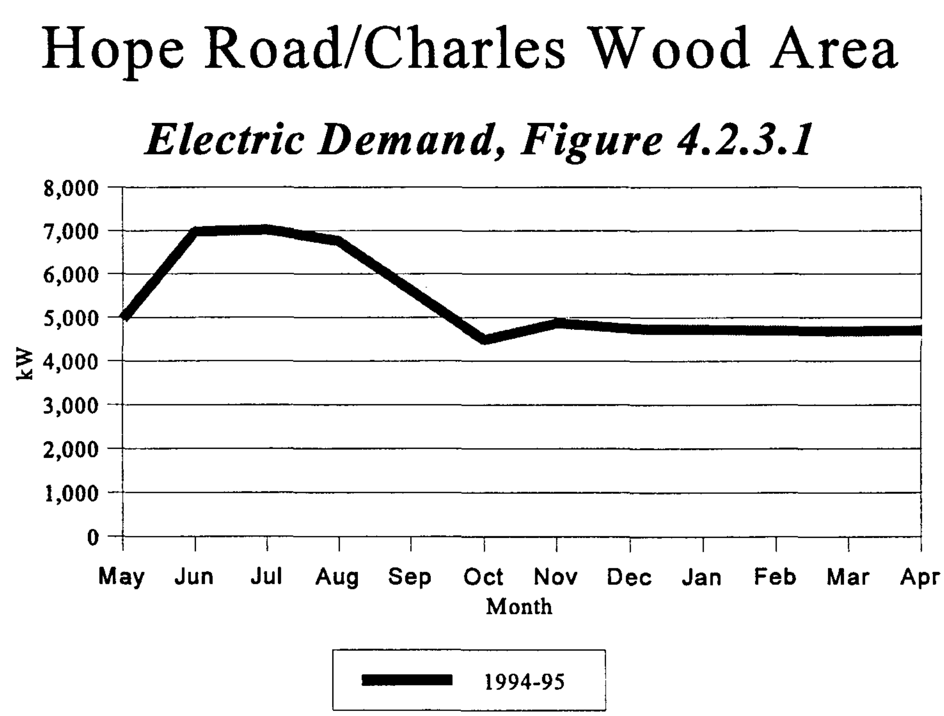
***Electric Usage, Figure 4.2.2.1***



### 4.2.3 Monthly Demand

Electrical demand is the highest rate of electrical energy used during a specified time interval (normally 15 minutes). The measurement of electric demand is expressed as kilowatts (1,000 watts). Electrical demand is not necessarily related to the amount of time the electrical components are in operation. The monthly billing demand profile the past year is graphically shown in Figure 4.2.3.1.

The billed demand is fairly consistent during the winter months and increases during the warmer months.



## 4.3 Fuel Oil

Until October of 1995, No. 2 heating fuel oil has been used to fire Building 2700's boilers which supplies steam to Building's 2700, 2704, 2705, 2706 and 2715. Table 4.3.1 shows the fuel oil billing history as delivered to Building 2700, for the year of April 1994 through March 1995. Data available before and after this period is limited. Bills for the months of June and November 1994, were unavailable. Usage values were estimated for these months by averaging the surrounding two (2) months. The costs were estimated to be \$0.74/gal and \$0.59/gal, respectively. The average cost for No. 2 fuel oil throughout the year analyzed was \$0.69/gal or \$4.97/mmBtu.

**Table 4.3.1, Building 2700, No. 2 Fuel Oil Billing History**
**April 1994 - March 1995**
**Premier O&G Supply Co., Inc., Rahway, New Jersey**

| Month | Delivered (gal) | Actual $/gal | Actual Cost ($) | Energy mmBtu |
|---|---|---|---|---|
| April 1994 | 43,118 | $0.78 | $33,632 | 5,980 |
| May | 28,964 | $0.74 | $21,433 | 4,017 |
| June | 32,330 | $0.74 | $23,924 | 4,484 |
| July | 35,695 | $0.74 | $26,414 | 4,951 |
| August | 29,251 | $0.78 | $22,816 | 4,057 |
| September | 29,383 | $0.78 | $22,919 | 4,075 |
| October | 43,013 | $0.78 | $33,550 | 5,965 |
| November | 43,684 | $0.59 | $25,774 | 6,058 |
| December | 44,355 | $0.59 | $26,169 | 6,152 |
| January 1995 | 45,412 | $0.59 | $26,793 | 6,298 |
| February | 38,037 | $0.59 | $22,442 | 5,275 |
| March | 37,804 | $0.59 | $22,304 | 5,243 |
| Total | 451,046 | $0.69 | $308,171 | 62,555 |

Refer to Appendix 8.5 for copies of the fuel oil bills for Building 2700.

The fuel oil delivery totals summarized above are compared to the usage totals taken at the boiler plant. Table 4.3.2 details this comparison and shows that the totals are relatively close for the one (1) year period from April 1994 to March 1995.

The usage totals reflect a total of 8.2% more than the delivered totals. Personnel at Fort Monmouth state that in addition to the delivered totals, excess fuel oil not used for other buildings was periodically dumped into the Building 2700 storage tank. This helps to explain the usage totals being higher than the delivery totals. The table confirms the validity of using the boiler plant logs for fuel use and subsequently for the adjusted steam production numbers. The yearly costs at $0.69 per gallon would have been approximately $334,000 for fuel oil use in the boiler plant for producing steam.

**Table 4.3.2, Building 2700 Fuel Oil Comparison**
**April 1994 - March 1995**

| Month | Delivered (gal) | Usage (gal) | Difference (gal) | Difference % |
|---|---|---|---|---|
| April 1994 | 43,118 | 41,680 | (1,438) | (3.3) |
| May | 28,964 | 38,110 | 9,146 | 31.6 |
| June | 32,330 | 29,540 | (2,790) | (8.6) |
| July | 35,695 | 30,540 | (5,155) | (14.4) |
| August | 29,251 | 33,110 | 3,859 | 13.2 |
| September | 29,383 | 32,950 | 3,567 | 12.1 |
| October | 43,013 | 35,570 | (7,443) | (17.3) |
| November | 43,684 | 40,590 | (3,094) | (7.1) |
| December | 44,355 | 48,230 | 3,875 | 8.7 |
| January 1995 | 45,412 | 52,190 | 6,778 | 14.9 |
| February | 38,037 | 54,920 | 16,883 | 44.4 |
| March | 37,804 | 46,990 | 9,186 | 24.3 |
| Total | 451,046 | 484,420 | 33,374 | 8.2 |
| Average | 37,587 | 40,368 | 2,781 | 8.2 |

Note: Values in parentheses ( ) indicate negative values.

## 4.4 Natural Gas

In the past, Building 2700 used natural gas for cooking, domestic hot water, and dehumidification during the course of a year. These consumption totals are expected to rise significantly with space heating associated with Boiler #3 coming on-line with natural gas at the end of 1995. Natural Gas is provided by New Jersey Natural Gas Company under Rate Schedule #2 (Firm Service Other Than Residential). The only natural gas bills supplied to Entech were for the months of August through November of 1995. The results show that the

consumption of natural gas by Building 2700 was very low. Table 4.4.1 displays the most recent available natural gas consumption totals.

The results in Table 4.4.1 reflect an average mcf cost of $8.61. As mentioned, the anticipated gas consumption will rise significantly. Usage totals in the past have been less than 100 mcf/month while future consumption totals are expected to be over 5,000 mcf/month on average. Based on the non-interruptible billing rate structure, Entech has determined the expected cost will be near $7.50/mcf or $7.27/mmBtu. This value will be used for calculating gas costs associated with the higher consumption. Information provided by Fort Monmouth personnel establishes the fact that the site will remain on the non-interruptible service for seven (7) years starting in 1995 as part of an agreement related to the gas company absorbing the cost for installing the new main to Building 2700. Interruptible rates beyond the initial seven (7) years should be significantly lower. The agreement is for the entire site usage totals and it includes a maximum demand limitation of 6.2 million therms and 3 million therms of minimum usage without penalty.

Refer to Appendix 8.6 for the gas bills from the fall of 1995, and Appendix 8.7 for the most recent gas billing rate structure documentation.

**Table 4.4.1, Natural Gas Billing History**
**New Jersey Natural Gas**
**August-November 1995**

| *Month* | *Usage (mcf)* | *Cost ($)* | *$ per mcf* |
|---|---|---|---|
| August * | 4.6 | $47.09 | $10.24 |
| September | 83.9 | $663.60 | $7.91 |
| October * | 69.7 | $553.11 | $7.97 |
| November | 22.0 | $184.04 | $8.37 |
| Totals | 180 | $1,447.84 | $8.03 |
| * Estimated Bills | | | Avg. $/mcf |

## 4.5 Steam Production

The Boiler Plant in Building 2700 provides steam to Buildings 2700, 2704, 2705, 2706, and 2715. Steam production is calculated from the fuel use totals recorded by the boiler plant operators in their daily logs. Table 4.5.1 reflects the steam production as recorded in the logs for a two year period between July 1993 through July 1995 which includes a one month shutdown. Copies of the boiler logs can be reviewed in Appendix 8.8.

The table shows that the method employed by the plant results in fuel to steam efficiencies in the mid 90 percentile range, and has one month over 100% efficiency. Efficiencies for boilers in the 90% range are unrealistic and therefore an adjustment is required. Entech was told by plant personnel that the accuracy of fuel oil consumption is dependable. Therefore the fuel oil totals were used as a basis to establish the adjusted steam production totals. The fuel totals are used in conjunction with optimistic fuel oil to steam efficiencies for these 40 year old boilers. These efficiencies are evaluated to be in the range of 70% to 80% for low to high demands, respectively. The resulting data, shown in Table 4.5.2 reduced boiler log production totals by an average of 20%.

**FT. MONMOUTH, DEPARTMENT OF THE ARMY**
**BUILDING 2700 - STEAM PRODUCTION HISTORY**
**JULY 1993 -JULY 1995**
**FACILITIES ENGINEERING OPERATING LOG**

**TABLE 4.5.1**

JULY 1993-JUNE 1994

| month | Operating days | Steam Production mlbs/month | Steam Production mlbs/day | Steam Production lbs/hr | Steam Energy mmBtu/mon. | No. 2 Fuel Oil Usage gal/mon. | No. 2 Fuel Oil Usage gal/day | Fuel Oil Energy mmBtu/month | Fuel Oil eff. (%) |
|---|---|---|---|---|---|---|---|---|---|
| July | 28 | 3,019 | 108 | 4,493 | 3,019 | 24,040 | 859 | 3,334 | 90.5% |
| August | 31 | 3,994 | 129 | 5,368 | 3,994 | 30,450 | 982 | 4,223 | 94.6% |
| September | 30 | 3,173 | 106 | 4,407 | 3,173 | 24,130 | 804 | 3,347 | 94.8% |
| October | 31 | 3,825 | 123 | 5,141 | 3,825 | 29,170 | 941 | 4,046 | 94.5% |
| November | 29.5 | 5,232 | 177 | 7,390 | 5,232 | 39,820 | 1,350 | 5,523 | 94.7% |
| December | 31 | 7,273 | 235 | 9,776 | 7,273 | 55,500 | 1,790 | 7,698 | 94.5% |
| January | 31 | 9,751 | 315 | 13,106 | 9,751 | 61,140 | 1,972 | 8,480 | 115.0% |
| February | 28 | 8,355 | 298 | 12,433 | 8,355 | 63,480 | 2,267 | 8,805 | 94.9% |
| March | 31 | 7,687 | 248 | 10,332 | 7,687 | 58,530 | 1,888 | 8,118 | 94.7% |
| April | 30 | 5,480 | 183 | 7,611 | 5,480 | 41,680 | 1,389 | 5,781 | 94.8% |
| May | 31 | 5,005 | 161 | 6,727 | 5,005 | 38,110 | 1,229 | 5,286 | 94.7% |
| June | 30 | 3,874 | 129 | 5,381 | 3,874 | 29,540 | 985 | 4,097 | 94.6% |
| TOTAL: | 361.5 | 66,668 | 184 | 7,684 | 66,668 | 495,590 | 1,371 | 68,738 | 97.0% |

JULY 1994-JULY 1995

| month | Operating days | Steam Production mlbs/month | Steam Production mlbs/day | Steam Production lbs/hr | Steam Energy mmBtu/month | No. 2 Fuel Oil Usage gal/mon. | No. 2 Fuel Oil Usage gal/day | Fuel Oil Energy mmBtu/month | Fuel Oil eff. (%) |
|---|---|---|---|---|---|---|---|---|---|
| July | 31 | 4,020 | 130 | 5,403 | 4,020 | 30,540 | 985 | 4,236 | 94.9% |
| August | 31 | 4,353 | 140 | 5,851 | 4,353 | 33,110 | 1,068 | 4,592 | 94.8% |
| September | 30 | 4,352 | 145 | 6,044 | 4,352 | 32,950 | 1,098 | 4,570 | 95.2% |
| October | 31 | 4,669 | 151 | 6,276 | 4,669 | 35,570 | 1,147 | 4,934 | 94.6% |
| November | 30 | 5,286 | 176 | 7,342 | 5,286 | 40,590 | 1,353 | 5,630 | 93.9% |
| December | 31 | 6,177 | 199 | 8,302 | 6,177 | 48,230 | 1,556 | 6,690 | 92.3% |
| January | 31 | 6,854 | 221 | 9,212 | 6,854 | 52,190 | 1,684 | 7,239 | 94.7% |
| February | 28 | 7,246 | 259 | 10,783 | 7,246 | 54,920 | 1,961 | 7,617 | 95.1% |
| March | 31 | 6,183 | 199 | 8,310 | 6,183 | 46,990 | 1,516 | 6,518 | 94.9% |
| April | 28 | 4,654 | 166 | 6,926 | 4,654 | 36,180 | 1,292 | 5,018 | 92.7% |
| May | Plant Down | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| June | 20 | 2,160 | 108 | 4,500 | 2,160 | 16,520 | 826 | 2,291 | 94.3% |
| July | 31 | 3,189 | 103 | 4,286 | 3,189 | 23,620 | 762 | 3,276 | 97.3% |
| TOTAL: | 353.0 | 59,143 | 168 | 6,981 | 59,143 | 451,410 | 1,279 | 62,611 | 94.5% |

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FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 - STEAM PRODUCTION HISTORY
JULY 1993 -JULY 1995
ADJUSTED STEAM PRODUCTION

TABLE 4.5.2

JULY 1993-JUNE 1994

| month | Operating days | No. 2 Fuel Oil Log Usage gal/mon. | gal/day | Fuel Oil Energy mmBtu/month | Fuel Oil est. eff. (%) | Adj. Stm. Energy mmBtu/mon. | Adjusted Steam Production mlbs/month | mlbs/day | lbs/hr |
|---|---|---|---|---|---|---|---|---|---|
| July | 28 | 24,040 | 859 | 3,334 | 70.0% | 2,334 | 2,334 | 83 | 3,473 |
| August | 31 | 30,450 | 982 | 4,223 | 70.0% | 2,956 | 2,956 | 95 | 3,974 |
| September | 30 | 24,130 | 804 | 3,347 | 70.0% | 2,343 | 2,343 | 78 | 3,254 |
| October | 31 | 29,170 | 941 | 4,046 | 70.0% | 2,832 | 2,832 | 91 | 3,807 |
| November | 29.5 | 39,820 | 1,350 | 5,523 | 75.0% | 4,142 | 4,142 | 140 | 5,851 |
| December | 31 | 55,500 | 1,790 | 7,698 | 80.0% | 6,158 | 6,158 | 199 | 8,277 |
| January | 31 | 61,140 | 1,972 | 8,480 | 80.0% | 6,784 | 6,784 | 219 | 9,118 |
| February | 28 | 63,480 | 2,267 | 8,805 | 80.0% | 7,044 | 7,044 | 252 | 10,482 |
| March | 31 | 58,530 | 1,888 | 8,118 | 80.0% | 6,494 | 6,494 | 209 | 8,729 |
| April | 30 | 41,680 | 1,389 | 5,781 | 75.0% | 4,336 | 4,336 | 145 | 6,022 |
| May | 31 | 38,110 | 1,229 | 5,286 | 75.0% | 3,964 | 3,964 | 128 | 5,328 |
| June | 30 | 29,540 | 985 | 4,097 | 70.0% | 2,868 | 2,868 | 96 | 3,983 |
| TOTAL: | 361.5 | 495,590 | 1,371 | 68,738 | 76.0% | 52,256 | 52,256 | 145 | 6,023 |

JULY 1994-JULY 1995

| month | Operating days | No. 2 Fuel Oil Log Usage gal/mon. | gal/day | Fuel Oil Energy mmBtu/month | Fuel Oil est. eff. (%) | Adj. Stm. Energy mmBtu/month | Adjusted Steam Production mlbs/month | mlbs/day | lbs/hr |
|---|---|---|---|---|---|---|---|---|---|
| July | 31 | 30,540 | 985 | 4,236 | 70.0% | 2,965 | 2,965 | 96 | 3,985 |
| August | 31 | 33,110 | 1,068 | 4,592 | 70.0% | 3,215 | 3,215 | 104 | 4,321 |
| September | 30 | 32,950 | 1,098 | 4,570 | 70.0% | 3,199 | 3,199 | 107 | 4,443 |
| October | 31 | 35,570 | 1,147 | 4,934 | 75.0% | 3,700 | 3,700 | 119 | 4,973 |
| November | 30 | 40,590 | 1,353 | 5,630 | 75.0% | 4,222 | 4,222 | 141 | 5,864 |
| December | 31 | 48,230 | 1,556 | 6,690 | 80.0% | 5,352 | 5,352 | 173 | 7,193 |
| January | 31 | 52,190 | 1,684 | 7,239 | 80.0% | 5,791 | 5,791 | 187 | 7,784 |
| February | 28 | 54,920 | 1,961 | 7,617 | 80.0% | 6,094 | 6,094 | 218 | 9,068 |
| March | 31 | 46,990 | 1,516 | 6,518 | 80.0% | 5,214 | 5,214 | 168 | 7,008 |
| April | 28 | 36,180 | 1,292 | 5,018 | 75.0% | 3,764 | 3,764 | 134 | 5,601 |
| May | Plant Down | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| June | 20 | 16,520 | 826 | 2,291 | 70.0% | 1,604 | 1,604 | 80 | 3,342 |
| July | 31 | 23,620 | 762 | 3,276 | 70.0% | 2,293 | 2,293 | 74 | 3,082 |
| TOTAL: | 353.0 | 451,410 | 1,279 | 62,611 | 75.7% | 47,413 | 47,413 | 134 | 5,596 |

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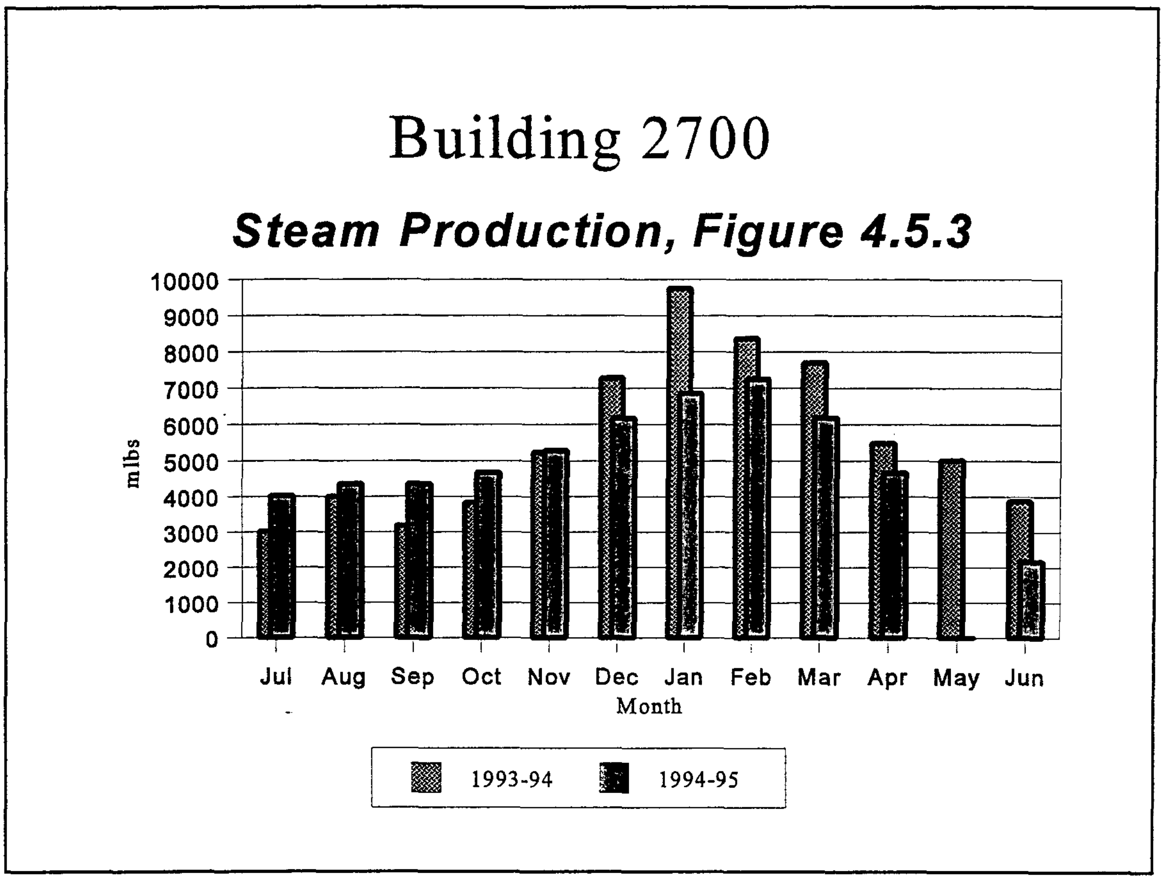
Figure 4.5.3 reflects the production by month for the comparative years of the adjusted steam production values.




The following Table 4.5.4 is a summary of the two years of data in Table 4.5.2 from an mlbs/day and an lbs/hr standpoint. Average values from these tables will be used in establishing a steam model of the yearly production.

The actual operating efficiencies for these boilers may be as low as 60-65%. The approach used here was to establish steam production from fuel use totals making sure to have enough steam available for analysis. If estimates for efficiencies are too low, then separating the uses could become tedious with only minor (or no) losses to go around. Estimates on the high side allow for energy losses from inefficiencies to be counted in with the steam production

losses. In either case, the wasted fuel is accounted for whether it is included in the generation or distribution of steam.

The addition of a new dual fuel burner assembly to one of these forty year old boilers can only be expected to increase the overall fuel to steam efficiencies of that boiler by 2% (± 1%). The majority of the losses associated with these boilers remains in their inefficient geometry, loose construction, etc., leading to poor heat transfer and high excess air. Since, No. 2 oil is typically 2% better in efficiency than natural gas, the same efficiency values were maintained in going from No. 2 oil use with the older burner to natural gas with new burners. The delineation between boiler losses and system losses is irrelevant in establishing existing costs for oil or gas versus future costs with new equipment.

**Table 4.5.4, Building 2700 Steam Consumption Rate**

| Month | Day | 1993-1994 | | 1994-1995 | | Average | | |
|---|---|---|---|---|---|---|---|---|
| | | mlbs/day | lbs/hr | mlbs/day | lbs/hr | mlbs/day | lbs/hr | mlbs/month |
| July | 31 | 83 | 3,473 | 96 | 3,985 | 90 | 3,729 | 2,775 |
| August | 31 | 95 | 3,974 | 104 | 4,321 | 100 | 4,148 | 3,085 |
| September | 30 | 78 | 3,254 | 107 | 4,443 | 93 | 3,849 | 2,775 |
| October | 31 | 91 | 3,807 | 119 | 4,973 | 105 | 4,390 | 3,255 |
| November | 30 | 140 | 5,851 | 141 | 5,864 | 141 | 5,858 | 4,215 |
| December | 31 | 199 | 8,277 | 173 | 7,193 | 186 | 7,735 | 5,766 |
| January | 31 | 219 | 9,118 | 187 | 7,784 | 203 | 8,451 | 6,293 |
| February | 28 | 252 | 10,482 | 218 | 9,068 | 235 | 9,775 | 6,580 |
| March | 31 | 209 | 8,729 | 168 | 7,008 | 189 | 7,869 | 5,844 |
| April | 30 | 145 | 6,022 | 134 | 5,601 | 140 | 5,812 | 4,185 |
| May | 31 | 128 | 5,328 | 108 | 4,500 | 118 | 4,914 | 3,658 |
| June | 30 | 96 | 3,983 | 80 | 3,342 | 88 | 3,663 | 2,640 |
| Total | 365 | 1,735 | --- | 1,635 | --- | 1,685 | --- | 51,071 |
| Average | 30.4 | 144.6 | 6,024.8 | 136.3 | 5,673.5 | 140 | 5,849 | 4,256 |

The values in Table 4.5.4 relate directly to the daily and hourly production totals summarized in Table 4.5.2. Yearly values were then calculated assuming typical monthly day totals or 365 days per year. May 1994-1995 was estimated. July 1994-1995 shown previously to constitute a year of data was omitted for clarity.

The average values shown in Table 4.5.4 will be used as a basis for the Steam Model in Section 5 and for ECOs in Section 6.

## 4.6 Estimated Steam Costs Using Natural Gas

Since natural gas will be the primary source (99%+) of fuel for making steam in Building 2700, we must now convert past steam production tables from fuel oil based totals to natural gas based totals.

Using the average mlbs/month and assuming that the new gas train on Boiler #3 operates at the corresponding monthly efficiencies identified previously, we can now produce reference usage and cost totals for steam production using natural gas.

Table 4.6.1 documents the estimated natural gas costs based on $7.50/mcf for the average steam production for the last two years. Gas consumption for steam production is approximately 69,210 mcf/year. The estimated cost for using natural gas to produce steam in the existing boiler plant is about $519,000. For the equivalent amount of steam using No. 2 fuel oil at the same efficiencies the cost would have been about $334,000. Therefore, from this evaluation the first year cost increase for the site using gas over oil in the Building 2700 central boiler plant can be expected to be about $175,000.

## Table 4.6.1, Building 2700
## Estimated Natural Gas Costs for Steam Production

| Month | Day | 2-yr Steam Flow Average | | | Steam Energy mmBtu/mo. | Boiler eff. | Natural Gas Energy mmBtu/mo. | Natural Gas mcf/mo. | Cost $/mo. |
|---|---|---|---|---|---|---|---|---|---|
| | | mlbs/day | lbs/hr | mlbs/mo. | | | | | |
| July | 31 | 90 | 3,729 | 2,775 | 2,775 | .70 | 3,964 | 4,087 | $30,652 |
| August | 31 | 100 | 4,148 | 3,085 | 3,085 | .70 | 4,407 | 4,544 | $34,077 |
| September | 30 | 93 | 3,849 | 2,775 | 2,775 | .70 | 3,964 | 4,087 | $30,652 |
| October | 31 | 105 | 4,390 | 3,255 | 3,255 | .75 | 4,340 | 4,475 | $33,559 |
| November | 30 | 141 | 5,858 | 4,215 | 4,215 | .75 | 5,620 | 5,794 | $43,457 |
| December | 31 | 186 | 7,735 | 5,766 | 5,766 | .80 | 7,208 | 7,431 | $55,736 |
| January | 31 | 203 | 8,451 | 6,293 | 6,293 | .80 | 7,866 | 8,110 | $60,824 |
| February | 28 | 235 | 9,775 | 6,580 | 6,580 | .80 | 8,225 | 8,480 | $63,600 |
| March | 31 | 189 | 7,869 | 5,844 | 5,844 | .80 | 7,305 | 7,531 | $56,486 |
| April | 30 | 140 | 5,812 | 4,185 | 4,185 | .75 | 5,580 | 5,753 | $43,147 |
| May | 31 | 118 | 4,914 | 3,658 | 3,658 | .75 | 4,877 | 5,028 | $37,711 |
| June | 30 | 88 | 3,663 | 2,640 | 2,640 | .70 | 3,771 | 3,888 | $29,159 |
| Total | 365 | 1,688 | | 51,071 | 51,071 | | 67,127 | 69,208 | $519,060 |
| Average | 30 | 141 | 5,849 | 4,256 | 4,256 | 0.76 | 5,594 | 5,767 | $43,255 |

# 5.0 ENERGY MODELS

## 5.1 General

Measured data regarding steam production and energy consumption and costs (gas, oil and electricity) for Building 2700 and it's boiler plant were presented in Section 4, Billing History, of this study. In this section of the report Entech examines how the steam produced and energy consumed are utilized. Before evaluating ECOs it is essential to understand the energy consumption patterns and how each type of energy user contributes to the overall building energy use and cost. As described in Section 2, Methodology, the analyses include the steam use model which is a summary of the six individual models, the fuel use model and the electric model. The main computer models as described in Section 2.5 are as follows:

1. Steam Use Model
2. Heat Gain Model (Degree Day Method)
3. Heat Gain / Loss Model (EZDOE Method)
4. Electric Model

Throughout this section references will be made to winter, intermediate and summer months. Since the MCA 2-pipe system runs from May 15 to October 15 for cooling and vice-versa for heating, some adjustments will be made where applicable.

| | |
|---|---|
| Winter | December, January, <u>February</u>, March |
| Intermediate | October, <u>November</u>, <u>April</u>, May |
| Summer | <u>June</u>, July, August, September |

Note: The underlined months relate to expectations for uses associated with the winter peak month, and the typical intermediate and summer months. Prorating

will be used in the other months when balancing the results of the steam model at the end of Section 5.2

## 5.2 Steam Use Model

The Steam Use Model investigates space heating, reheat, domestic hot water, cafeteria use, boiler plant steam use, and distribution losses which constitute the steam produced at the boiler plant in Building 2700. For purposes of ECO evaluation, we will present totals that include or omit the MCA related heating loads.

### 5.2.1 Space Heating

The boiler plant in Building 2700 provides steam for space heating associated with Building's 2700, 2704, 2705, 2706 and 2715. From the equipment summary tables, Table 3.4.1.1 and 3.4.1.2, the estimated connected loads for heating Building 2700 and 2706 are as follows:

| Building 2700 and 2706 | |
|---|---|
| 1. MCA Hot Water | 6,250 MBH (lbs/hr of steam) |
| 2. Misc. Steam Heating | 650 MBH (lbs/hr of steam) |
| 3. AHU's w/ Steam Heat and Misc. Cooling | 3,500 MBH (lbs/hr of steam) |
| Total Connected Load (w/MCA) | 10,400 MBH (lbs/hr of steam) |
| Total Connected Load (w/o MCA) | 4,150 MBH (lbs/hr of steam) |

Based on experience and guidance from EZDOE results presented later in this section, Entech estimates the following average demand requirements for each of these. During the peak heating month of the year, February, the MCA Hot Water average demands are estimated to

be at about 20-33% (day vs night) of the connected load and 7-12% during the intermediate months of November and April. The corresponding percentages for the Miscellaneous Steam units during this period are 17-25%, and 5-10% respectively. The heating system for MCA is turned off from mid-May through mid-October, while the miscellaneous users during this period are considered to be minimal, 4-8%, and limited to cool mornings in areas frequently open to outdoors such as loading docks, stair tower doors on first floor, etc.

With the exception of the cleanroom, minimal heating is expected during the year for areas supported by the air handlers utilizing steam. Areas supported by the majority of these units have high internal heat gains and cooling is expected year-round. During the peak heating month the usage for these air handlers is estimated to be only about 6-12% of the connected load. Intermediate months at 2-4% and 0% for the summer months. The cleanroom units requiring re-heat (steam all year) are not included in this sub-section. Refer to Section 5.2.2 for reheat requirements for the cleanrooms in Building 2700 and for areas in Building 2705.

From the design drawings it was determined that the connected heating loads for Buildings 2704, 2705 and 2715 are as follows:

| Building 2704 | |
|---|---|
| 1. Roof Top Steam AHU | 560 MBH (lbs/hr of steam) |
| 2. (2) Steam Unit Heaters | 210 MBH (lbs/hr of steam) |
| 3. HW Fintube | 30 MBH (lbs/hr of steam) |
| Total Connected Load | 800 MBH (lbs/hr of steam) |

| Building 2705 (see note) | |
|---|---|
| 1. (2) Hot Water Unit Heaters | 48 MBH (lbs/hr of steam) |
| 2. (3) Steam Unit Heaters | 260 MBH (lbs/hr of steam) |
| 3. AC-4 | 2 MBH (lbs/hr of steam) |
| 4. HV-1 (Staging Area) | 110 MBH (lbs/hr of steam) |
| Total Connected Load | 420 MBH (lbs/hr of steam) |

Note: Refer to Section 5.2.2 for reheat requirements for Building 2705.

| Building 2715 | |
|---|---|
| 1. Hot Water Coil | 25 MBH (lbs/hr of steam) |
| 2. (5) Unit Heaters | 60 MBH (lbs/hr of steam) |
| 3. Fintube Radiation | 2 MBH (lbs/hr of steam) |
| Total Connected Load | 87 MBH (lbs/hr of steam) |

In all three cases the same diversity factors established for these buildings are 16-24% (day vs night) during the winter peak month for Buildings 2704 and 2705, and about 6-10% for the intermediate months and 0% during the summer, and 12-24%, 6-12% and 0% respectively for Building 2715.

The space heating loads for the winter peak, the intermediate months, and the summer months are shown in Tables 5.2.1.1, 5.2.1.2, and 5.2.1.3. Day is considered from 8:00 am to 4:00 pm and the rest of the time is considered night.

## Table 5.2.1.1, Building 2700's Boiler Plant Demands
## Space Heating Load - Winter Peak Month

| Building | Winter Peak (Typical February Day) lbs/hr | | | Total (mlbs/day) |
|---|---|---|---|---|
| | 12am-8am | 8am-4pm | 4pm-12am | |
| Building 2700/2706 MCA Hot Water | 2,000 | 1,200 | 2,000 | 41.6 |
| Building 2700 Misc. Steam Heating | 160 | 110 | 160 | 3.4 |
| Building 2700 AHUs w/Steam Heating | 420 | 210 | 420 | 8.4 |
| Building 2704 | 190 | 130 | 190 | 4.1 |
| Building 2705 | 100 | 70 | 100 | 2.1 |
| Building 2715 | 20 | 10 | 20 | 0.4 |
| Totals w/MCA | 2,890 | 1,730 | 2,890 | 60.0 |
| Totals w/o MCA | 890 | 530 | 890 | 18.5 |

## Table 5.2.1.2, Building 2700's Boiler Plant Demands
## Space Heating Load - Intermediate Month

| Building | Intermediate Month (Typical Day) lbs/hr | | | Total (mlbs/ day) |
|---|---|---|---|---|
| | 12am-8am | 8am-4pm | 4pm-12am | |
| Building 2700/2706 MCA Hot Water | 750 | 460 | 750 | 15.7 |
| Building 2700 Misc. Steam Heating | 60 | 30 | 60 | 1.2 |
| Building 2700 AHUs w/Steam Heating | 140 | 70 | 140 | 2.8 |
| Building 2704 | 80 | 50 | 80 | 1.7 |
| Building 2705 | 40 | 30 | 40 | 0.9 |
| Building 2715 | 10 | 5 | 10 | 0.2 |
| Totals w/MCA | 1,080 | 645 | 1,080 | 22.5 |
| Totals w/o MCA | 330 | 185 | 330 | 6.8 |

**Table 5.2.1.3, Building 2700's Boiler Plant Demands**
**Space Heating Load - Summer Months**

| Building | Summer Month (Typical Day) lbs/hr | | | Total (mlbs/day |
|---|---|---|---|---|
| | 12am-8am | 8am-4pm | 4pm-12am | |
| Building 2700 Misc. Steam Heating | 50 | 25 | 50 | 1.0 |

### 5.2.2 Reheat

Reheat is either used with spaces where dehumidification is of prime importance, or with zoned temperature control areas associated with offices, etc. These spaces require year-round local temperature control. Dehumidification generally applies to areas with high mixed air humidity levels in the summer. In the colder periods of winter the reheat coils perform the function of heating the mixed cold air to the desired discharge temperature.

Building 2700 has four cleanrooms, three on the fourth floor and one on the second floor, that utilize high volumes of air flow. Reheat is relatively constant during the year because the heat gain in these spaces is low relative to the air flow quantities (i.e.: small temperature rise in space). From Table 3.4.1.2, the four cleanrooms equate to about 1,160 MBH. Entech will assume that 50% (day) - 90% (night) of the load is required year round. Process equipment and lighting loads from the day time operations are expected to add internal heat gain.

The remaining reheat associated with the steam load for Building 2700's boiler plant is for Building 2705. The design consists of three (3) air handlers utilizing seventeen (17) duct mounted reheat coils for zone control. Various temperature settings are required for these zones because of the unique function of this building. The connected design load for these zones is 1,220 MBH

Entech assumes that during winter peak months the reheat required varies from 40-75%. During the intermediate months these values go down to about 30-50%, and finally for the summer months a range of 20-40%.

The values for reheat are summarized in Tables 5.2.2.1, 5.2.2.2 and 5.2.2.3.

**Table 5.2.2.1, Building 2700's Boiler Plant Demands**
**Reheat Load - Winter Peak Month**

| Building | Winter Peak Month (Typical Day) lbs/hr | | | Total (mlbs/day) |
|---|---|---|---|---|
| | 12am-8am | 8am-4pm | 4pm-12am | |
| Building 2700 (4) Cleanrooms | 920 | 580 | 920 | 19.4 |
| Building 2705 (17) Zones | 915 | 490 | 915 | 19.0 |
| Totals | 1,835 | 1,070 | 1,835 | 38.4 |

**Table 5.2.2.2, Building 2700's Boiler Plant Demands**
**Reheat Load - Intermediate Month**

| Building | Intermediate Month (Typical Day) lbs/hr | | | Total (mlbs/day) |
|---|---|---|---|---|
| | 12am-8am | 8am-4pm | 4pm-12am | |
| Building 2700 (4) Cleanrooms | 920 | 580 | 920 | 19.4 |
| Building 2705 (17) Zones | 610 | 305 | 610 | 12.2 |
| Totals | 1,530 | 885 | 1,530 | 31.6 |

**Table 5.2.2.3, Building 2700's Boiler Plant Demands**
**Reheat Load - Summer Month**

| Building | Summer Month (Typical Day) lbs/hr | | | Total (mlbs) |
|---|---|---|---|---|
| | 12am-8am | 8am-4pm | 4pm-12am | |
| Building 2700 (4) Cleanrooms | 920 | 580 | 920 | 19.4 |
| Building 2705 (17) Zones | 490 | 245 | 490 | 10.0 |
| Totals | 1,410 | 825 | 1,410 | 29.4 |

### 5.2.3 Domestic Hot Water

In recent years, the domestic hot water system utilized the only operable generator/storage tank for supplying the needs of the building. Three of the original four had tube failures in the past and were never repaired.

In July of 1995 the last generator failed, thus eliminating the availability of hot water in the building. Areas in the building including the cafeteria, cleanrooms and certain labs have had local electric hot water generators installed in recent years and were not affected.

When the hot water was available, the usage was estimated to have been averaging 500 lb/hr (10 gpm at 100°F rise) during the day and 100 lb/hr (2 gpm at 100°F rise) during the night. Heat loss from the distribution system is included in these totals. The estimate for these losses is 20% of the totals. Peak times during the day may have required as much as 1,000 lb/hr (20 gpm at 100°F rise) for 1/2 hour or less. The 500 and 100 lb/hr total mentioned will be used as constants throughout the year. Table 5.2.3.1 reflects the typical day's impact on the boiler plant for domestic hot water heating.

The remaining buildings connected to the steam system utilize electric hot water generators and therefore do not impact the boiler plant.

**Table 5.2.3.1, Building 2700's Boiler Plant Demands
Domestic Hot Water - All Months**

| Building | All Months (Typical Day) lbs/hr | | | Total (mlbs/day) |
|---|---|---|---|---|
| | 12am-8am | 8am-4pm | 4pm-12am | |
| Building 2700 D.H.W. | 100 | 500 | 100 | 5.6 |

### 5.2.4 Cafeteria Steam Use

Section 3.8 identified equipment used in the kitchen that utilizes steam for cooking, warming, and dishwashing. The four devices listed operate throughout the day and utilize steam at rates of 40-60 lbs/hr with the dishwasher peaking at 100 lbs/hr for short periods of time. For purposes of this analysis Entech will assume a constant rate of 200 lbs/hr from

8:00 am - 4:00 pm. Year-round from 4:00 pm - 8:00 am will be considered a load of 0 lbs/hr. The daily demand throughout the year is estimated to be 1.6 mlbs/day.

### 5.2.5 Boiler Plant Steam Uses

The only use of steam in Building 2700's boiler plant is in the deaerator. Calculating this number takes into account the quantities and temperatures of condensate return and make-up.

Table 5.2.5.2 summarizes the monthly mass balance for feedwater to the boilers, and steam and blowdown from the boilers. Feedwater is calculated by adding an estimated constant blowdown for this plant of 150 mlbs/month to the monthly adjusted steam totals. Make-up water is metered and recorded in the daily logs. Like the steam log numbers, the make-up numbers require an adjustment. Plant personnel noted that the actual make-up is approximately 50% higher than the recorded values. This is due to the piping arrangement near the make-up water meter which allows for some bypassing of the meter resulting in higher flows than recorded.

The deaerator steam demand is the theoretical percentage of total feedwater required to balance the mass and heat input to the deaerators. The equation for determining the steam percentage is as follows, and the derivation of it can be found in Attachment 8.9.

Deaerator Steam (% of feedwater)

$$\frac{lb}{hr}(S) = 100\ x\ \frac{\left(\left(\frac{btu}{lb}(F) - \frac{btu}{lb}(C)\right) - \left(\frac{lb}{hr}(M)\ x\ \left(\frac{btu}{lb}(M) - \frac{btu}{lb}(C)\right)\right)\right)}{\left(\frac{btu}{lb}(S) - \frac{btu}{lb}(C)\right)}$$

Condensate Return (% of feedwater)

$$\frac{lb}{hr}(C) = 100\ x\ \left(1 - \frac{lb}{hr}(M) - \frac{lb}{hr}(S)\right)$$

| | | |
|---|---|---|
| S | = | Deaerator Steam |
| F | = | Feedwater |
| C | = | Condensate Return |
| M | = | Make-up Water |

The results in Table 5.2.5.2 show that the deaerator requires boiler supplied steam which constitutes 6.2 - 7.4% of the feedwater totals throughout the years. The daily demand for feedwater steam during the winter peak month is near 15 mlbs/day. For the typical intermediate and summer months the totals are approximately 9 and 6 mlbs/day respectively.

**FT. MONMOUTH, DEPARTMENT OF THE ARMY**
**BUILDING 2700 BOILER PLANT - FEEDWATER MASS/HEAT TRANSFER BALANCE**
**JULY 1993 -JULY 1995**

**TABLE 5.2.5.2**

JULY 1993-JUNE 1994

| month | Operating (days) | Log Steam (mlbs/month) | Adj. Steam (mlbs/month) | Est. Blowdown (mlbs/month) | Est. Blowdown FW (%) | Est. Feedwater (mlbs/month) | Log Make-up (gal/month) | Adj. Make-up (gal/month) | Adj. Make-up (mlbs/month) | Adj. Make-up FW (%) | Deaerator Steam FW (%) | Deaerator Steam (mlbs/month) | Deaerator Steam (mlbs/day) | Condensate Return FW (%) | Condensate Return (mlbs/month) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| July | 28 | 3,019 | 2,334 | 150 | 6.0% | 2,484 | 76,400 | 114,600 | 229 | 9.2% | 6.640% | 165 | 5.9 | 78.1% | 1,940 |
| August | 31 | 3,994 | 2,956 | 150 | 4.8% | 3,106 | 101,900 | 152,850 | 306 | 9.8% | 6.706% | 208 | 6.7 | 78.6% | 2,442 |
| September | 30 | 3,173 | 2,343 | 150 | 6.0% | 2,493 | 100,100 | 150,150 | 300 | 12.0% | 6.902% | 172 | 5.7 | 75.0% | 1,870 |
| October | 31 | 3,825 | 2,832 | 150 | 5.0% | 2,982 | 103,100 | 154,650 | 309 | 10.4% | 6.753% | 201 | 6.5 | 77.8% | 2,321 |
| November | 29.5 | 5,232 | 4,142 | 150 | 3.5% | 4,292 | 83,200 | 124,800 | 250 | 5.8% | 6.330% | 272 | 9.2 | 84.4% | 3,621 |
| December | 31 | 7,273 | 6,158 | 150 | 2.4% | 6,308 | 103,300 | 154,950 | 310 | 4.9% | 6.257% | 395 | 12.7 | 86.5% | 5,454 |
| January | 31 | 9,751 | 6,784 | 150 | 2.2% | 6,934 | 107,300 | 160,950 | 322 | 4.6% | 6.229% | 432 | 13.9 | 87.0% | 6,030 |
| February | 28 | 8,355 | 7,044 | 150 | 2.1% | 7,194 | 109,700 | 164,550 | 329 | 4.6% | 6.220% | 447 | 16.0 | 87.1% | 6,267 |
| March | 31 | 7,687 | 6,494 | 150 | 2.3% | 6,644 | 147,800 | 221,700 | 443 | 6.7% | 6.416% | 426 | 13.8 | 84.7% | 5,625 |
| April | 30 | 5,480 | 4,336 | 150 | 3.3% | 4,486 | 116,400 | 174,600 | 349 | 7.8% | 6.519% | 292 | 9.7 | 82.4% | 3,694 |
| May | 31 | 5,005 | 3,964 | 150 | 3.6% | 4,114 | 138,700 | 208,050 | 416 | 10.1% | 6.734% | 277 | 8.9 | 79.5% | 3,271 |
| June | 30 | 3,874 | 2,868 | 150 | 5.0% | 3,018 | 142,500 | 213,750 | 428 | 14.2% | 7.099% | 214 | 7.1 | 73.8% | 2,226 |
| TOTAL: | 361.5 | 66,668 | 52,256 | 1,800 | 3.3% | 54,056 | 1,330,400 | 1,995,600 | 3,991 | 7.4% | 6.479% | 3,503 | 9.7 | 82.8% | 44,763 |

JULY 1994-JULY 1995

| month | Operating (days) | Log Steam (mlbs/month) | Adj. Steam (mlbs/month) | Est. Blowdown (mlbs/month) | Est. Blowdown FW (%) | Est. Feedwater (mlbs/month) | Log Make-up (gal/month) | Adj. Make-up (gal/month) | Adj. Make-up (mlbs/month) | Adj. Make-up FW (%) | Deaerator Steam FW (%) | Deaerator Steam (mlbs/month) | Deaerator Steam (mlbs/day) | Condensate Return FW (%) | Condensate Return (mlbs/month) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| July | 31 | 4,020 | 2,965 | 150 | 4.8% | 3,115 | 132,200 | 198,300 | 397 | 12.7% | 6.968% | 217 | 7.0 | 75.5% | 2,351 |
| August | 31 | 4,353 | 3,215 | 150 | 4.5% | 3,365 | 199,000 | 298,500 | 597 | 17.7% | 7.437% | 250 | 8.1 | 70.4% | 2,367 |
| September | 30 | 4,352 | 3,199 | 150 | 4.5% | 3,349 | 116,600 | 174,900 | 350 | 10.4% | 6.762% | 226 | 7.5 | 78.3% | 2,623 |
| October | 31 | 4,669 | 3,700 | 150 | 3.9% | 3,850 | 104,200 | 156,300 | 313 | 8.1% | 6.547% | 252 | 8.1 | 81.4% | 3,135 |
| November | 30 | 5,286 | 4,222 | 150 | 3.4% | 4,372 | 109,000 | 163,500 | 327 | 7.5% | 6.491% | 284 | 9.5 | 82.6% | 3,612 |
| December | 31 | 6,177 | 5,352 | 150 | 2.7% | 5,502 | 109,000 | 163,500 | 327 | 5.9% | 6.350% | 349 | 11.3 | 85.0% | 4,675 |
| January | 31 | 6,854 | 5,791 | 150 | 2.5% | 5,941 | 111,600 | 167,400 | 335 | 5.6% | 6.322% | 376 | 12.1 | 85.5% | 5,081 |
| February | 28 | 7,246 | 6,094 | 150 | 2.4% | 6,244 | 92,100 | 138,150 | 276 | 4.4% | 6.210% | 388 | 13.8 | 87.0% | 5,430 |
| March | 31 | 6,183 | 5,214 | 150 | 2.8% | 5,364 | 100,600 | 150,900 | 302 | 5.6% | 6.322% | 339 | 10.9 | 85.3% | 4,573 |
| April | 28 | 4,654 | 3,764 | 150 | 3.8% | 3,914 | 93,800 | 140,700 | 281 | 7.2% | 6.462% | 253 | 9.0 | 82.5% | 3,229 |
| May | Plant Down | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| June | 20 | 2,160 | 1,604 | 100 | 5.9% | 1,704 | 60,400 | 90,600 | 181 | 10.6% | 6.762% | 115 | 5.8 | 76.7% | 1,308 |
| July | 31 | 3,189 | 2,293 | 150 | 6.1% | 2,443 | 92,100 | 138,150 | 276 | 11.3% | 6.837% | 167 | 5.4 | 75.7% | 1,850 |
| TOTAL: | 353.0 | 59,143 | 47,413 | 1,750 | 3.6% | 49,163 | 1,320,600 | 1,980,900 | 3,962 | 8.1% | 6.543% | 3,217 | 9.1 | 81.8% | 40,234 |

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### 5.2.6 Steam Distribution Losses

For this report Entech will establish the distribution losses (mass and heat) by determining the residual steam by subtracting the estimated system quantities from the steam produced. Table 5.2.6.1 establishes the expected losses that balance the typical days for winter peak, intermediate and summer months. Table 5.2.6.2 is the same information without MCA water related steam.

**Table 5.2.6.1, Building 2700 Boiler Plant**
**Estimated Steam Distribution Losses w/MCA**

| Use | Winter Peak Month | | Intermediate Month | | Summer Month | |
|---|---|---|---|---|---|---|
| | mlbs/day | % | mlbs/day | % | mlbs/day | % |
| Total | 235.0 | 100.0% | 140.5 | 100.0% | 95.0 | 100.0% |
| Heating | 60 | 25.5% | 22.5 | 16.0% | 1.0 | 1.0% |
| Reheat | 38.4 | 16.3% | 31.6 | 22.6% | 29.4 | 31.0% |
| DHW | 5.6 | 2.4% | 5.6 | 4.0% | 5.6 | 5.9% |
| Cafeteria | 1.6 | 0.7% | 1.6 | 1.1% | 1.6 | 1.7% |
| Plant | 14.8 | 6.3% | 9.1 | 6.5% | 6.6 | 6.9% |
| Losses | 114.6 | 48.8% | 70.7 | 49.8% | 50.8 | 53.5% |

Note: The losses predicted here probably include excess steam production estimates that could be attributed to higher losses in less efficient boilers. The actual steam losses probably are in the range of 30% to 40%. However, the fuel consumed to generate the actual totals is still the same.

**Table 5.2.6.2, Building 2700 Boiler Plant**
**Estimated Steam Distribution Losses w/o MCA**

| Use | Winter Peak Month | | Intermediate Month | | Summer Month | |
|---|---|---|---|---|---|---|
| | mlbs/day | % | mlbs/day | % | mlbs/day | % |
| Total | 188.5 | 100.0% | 100.0 | 100.0% | 95.0 | 100.0% |
| Heating | 18.5 | 9.8% | 5.0 | 5.0% | 1.0 | 1.0% |
| Reheat | 38.4 | 20.4% | 31.6 | 31.6% | 29.4 | 31.0% |
| DHW | 5.6 | 3.0% | 5.6 | 5.6% | 5.6 | 5.9% |
| Cafeteria | 1.6 | 0.8% | 1.6 | 1.6% | 1.6 | 1.7% |
| Plant | 11.9 | 6.3% | 6.5 | 6.5% | 6.6 | 6.9% |
| Losses | 112.5 | 59.7% | 49.7 | 49.7% | 50.8 | 53.5% |

The results in Tables 5.2.6.1 and 5.2.7.1 suggest that the percentage of loss in the summer months are similar to what is expected in the winter and intermediate months. When considering the distribution system and the way the building operates, the high loss results make sense. The distribution system includes a 12" header in the boiler room, and 10" headers to each end of the building. The system sizing was based on the four original boilers producing 60,000 lb/hr. For various reasons the load is presently estimated to peak at about 15,000 lb/hr during the year. Design velocities for the system were probably close to 6,000 ft/min in the headers. Actual velocities in these headers are now expected to peak at 1,500 ft/min and drop as low as 500 ft/min.

Throughout the year the large pipe system relative to the system demand creates excess heat loss due to the large surface areas of the header

piping. In the past, Building 2700 had a fair amount of piping runs not insulated. A report done in 1993 identified these and reportedly most had been subsequently fixed.

During Entech's site investigation, some steam piping and valves were still seen to be without insulation. How these individual sightings compare to the previous report is unknown. Many areas that contain steam lines generally are overheated year round.

In addition to the inherent losses associated with the oversized pipe, it is expected that steam and condensate leaks exist, especially in the underground piping to and from Buildings 2704 and 2705, and from the greatly oversized traps in the main headers in Building 2700 which tend to wire-draw under these conditions. Wire drawing is the passing of steam/condensate across trap seats that cut lines into the seats causing leaks over time.

In the spring of the year it appears many of the users, primarily air handlers, shut off the supply to the coils until October or November. It is expected that during the summer there is a significant increase in the dead-leg pipe runs that have traps and inherently are condensate generators. Intuitively we can consider that the longer steam is in a system (low vs high flow) the more likely that it may convert to condensate prior to use. Based on the ideas presented, the condensate losses in the summer would remain at the levels predicted in these models.

### 5.2.7 Steam Use Model Summary

The steam totals from the Building 2700 boiler plant predicted in Section 4 have been evaluated and broken down in the past six subsections.

Table 5.2.7.1 balances the estimated daily usage numbers for the average steam production numbers from Table 4.5.4. Table 5.2.7.2 is the same information less the estimated existing MCA system loads including deaerator steam and an 8% line loss to Building 2706 which is in close proximity of Building 2700 boiler plant. The total steam produced in conjunction with the existing MCA load is approximately 6,400 mlbs/yr. All twelve months are accounted for by prorating/estimating from the pre-determined seasonal values.

Table 5.2.7.3 and Figure 5.2.7.4 summarize the different uses for the entire year including the MCA loads. From the usage total for the MCA hot water system was estimated to be 5,550 mmBtu/yr. The yearly reheat total for Building 2700 is approximated 60% or 6,700 mmBtu/hr of the total reheat required between Building's 2700 and 2705

**FT. MONMOUTH, DEPARTMENT OF THE ARMY**
**BUILDING 2700 BOILER PLANT - SUMMARY OF DAILY STEAM USAGE**
**JULY 1993 -JULY 1995**

**Boiler Plant w/ MCA Hot Water Loads & Losses**

**TABLE 5.2.7.1**

JULY 1993-JUNE 1995 AVERAGE

| month | Operating | Average Steam Produced | | Space Heating | | Reheat | | Domestic Hot Water | | Cafeteria Use | | Boiler Plant Use | | Distribution Losses | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (days) | (mlbs/month) | (mlbs/day) | (mlbs/day) | Demand (%) | (mlbs/day) | Demand (%) | (mlbs/day) | Demand (%) | (mlbs/day) | Demand (%) | (mlbs/day) | Demand (%) | (mlbs/day) | Demand (%) |
| July | 31 | 2,775 | 89.5 | 1.0 | 1.1% | 29.4 | 32.8% | 5.6 | 6.3% | 1.6 | 1.8% | 6.2 | 6.9% | 45.7 | 51.1% |
| August | 31 | 3,085 | 99.5 | 1.5 | 1.5% | 30.2 | 30.4% | 5.6 | 5.6% | 1.6 | 1.6% | 6.9 | 6.9% | 53.7 | 54.0% |
| September | 30 | 2,775 | 92.5 | 3.0 | 3.2% | 30.2 | 32.6% | 5.6 | 6.1% | 1.6 | 1.7% | 6.4 | 6.9% | 45.7 | 49.4% |
| October | 31 | 3,255 | 105.0 | 11.3 | 10.7% | 31.0 | 29.5% | 5.6 | 5.3% | 1.6 | 1.5% | 6.8 | 6.5% | 48.7 | 46.4% |
| November | 30 | 4,215 | 140.5 | 22.5 | 16.0% | 31.0 | 22.1% | 5.6 | 4.0% | 1.6 | 1.1% | 9.1 | 6.5% | 70.7 | 50.3% |
| December | 31 | 5,766 | 186.0 | 40.5 | 21.8% | 31.6 | 17.0% | 5.6 | 3.0% | 1.6 | 0.9% | 11.7 | 6.3% | 95.0 | 51.1% |
| January | 31 | 6,293 | 203.0 | 49.5 | 24.4% | 35.0 | 17.2% | 5.6 | 2.8% | 1.6 | 0.8% | 12.8 | 6.3% | 98.5 | 48.5% |
| February | 28 | 6,580 | 235.0 | 60.0 | 25.5% | 38.4 | 16.3% | 5.6 | 2.4% | 1.6 | 0.7% | 14.8 | 6.3% | 114.6 | 48.8% |
| March | 31 | 5,844 | 188.5 | 40.5 | 21.5% | 35.0 | 18.6% | 5.6 | 3.0% | 1.6 | 0.8% | 11.9 | 6.3% | 93.9 | 49.8% |
| April | 30 | 4,185 | 139.5 | 22.5 | 16.1% | 31.6 | 22.7% | 5.6 | 4.0% | 1.6 | 1.1% | 9.1 | 6.5% | 69.1 | 49.6% |
| May | 31 | 3,658 | 118.0 | 13.5 | 11.4% | 30.2 | 25.6% | 5.6 | 4.7% | 1.6 | 1.4% | 7.7 | 6.5% | 59.4 | 50.4% |
| June | 30 | 2,640 | 88.0 | 1.5 | 1.7% | 29.4 | 33.4% | 5.6 | 6.4% | 1.6 | 1.8% | 6.1 | 6.9% | 43.8 | 49.8% |
| TOTAL: | 365.0 | 51,071 | 139.9 | 22.3 | 15.9% | 31.9 | 22.8% | 5.6 | 4.0% | 1.6 | 1.2% | 9.1 | 6.5% | 69.4 | 49.6% |

**Boiler Plant w/o MCA Hot Water Loads & Losses**

**TABLE 5.2.7.2**

JULY 1993-JUNE 1995 AVERAGE

| month | Operating | Average Steam Produced | | Space Heating | | Reheat | | Domestic Hot Water | | Cafeteria Use | | Boiler Plant Use | | Distribution Losses | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (days) | (mlbs/month) | (mlbs/day) | (mlbs/day) | Demand (%) | (mlbs/day) | Demand (%) | (mlbs/day) | Demand (%) | (mlbs/day) | Demand (%) | (mlbs/day) | Demand (%) | (mlbs/day) | Demand (%) |
| July | 31 | 2,775 | 89.5 | 1.0 | 1.1% | 29.4 | 32.8% | 5.6 | 6.3% | 1.6 | 1.8% | 6.2 | 6.9% | 45.7 | 51.1% |
| August | 31 | 3,085 | 99.5 | 1.5 | 1.5% | 30.2 | 30.4% | 5.6 | 5.6% | 1.6 | 1.6% | 6.9 | 6.9% | 53.7 | 54.0% |
| September | 30 | 2,775 | 92.5 | 3.0 | 3.2% | 30.2 | 32.6% | 5.6 | 6.1% | 1.6 | 1.7% | 6.4 | 6.9% | 45.7 | 49.4% |
| October | 31 | 3,030 | 97.7 | 4.8 | 4.9% | 31.0 | 31.7% | 5.6 | 5.7% | 1.6 | 1.6% | 6.4 | 6.5% | 48.4 | 49.5% |
| November | 30 | 3,685 | 122.8 | 6.8 | 5.5% | 31.0 | 25.2% | 5.6 | 4.6% | 1.6 | 1.3% | 8.0 | 6.5% | 69.8 | 56.9% |
| December | 31 | 4,745 | 153.1 | 11.2 | 7.3% | 31.6 | 20.6% | 5.6 | 3.7% | 1.6 | 1.0% | 9.6 | 6.3% | 93.4 | 61.0% |
| January | 31 | 5,098 | 164.5 | 15.2 | 9.2% | 35.0 | 21.3% | 5.6 | 3.4% | 1.6 | 1.0% | 10.4 | 6.3% | 96.7 | 58.8% |
| February | 28 | 5,274 | 188.4 | 18.5 | 9.8% | 38.4 | 20.4% | 5.6 | 3.0% | 1.6 | 0.8% | 11.9 | 6.3% | 112.4 | 59.7% |
| March | 31 | 4,850 | 156.4 | 12.0 | 7.7% | 35.0 | 22.4% | 5.6 | 3.6% | 1.6 | 1.0% | 9.9 | 6.3% | 92.4 | 59.1% |
| April | 30 | 3,639 | 121.3 | 6.8 | 5.6% | 31.6 | 26.1% | 5.6 | 4.6% | 1.6 | 1.3% | 7.9 | 6.5% | 67.8 | 55.9% |
| May | 31 | 3,110 | 100.3 | 4.0 | 4.0% | 30.2 | 30.1% | 5.6 | 5.6% | 1.6 | 1.6% | 6.5 | 6.5% | 52.4 | 52.2% |
| June | 30 | 2,640 | 88.0 | 1.0 | 1.1% | 29.4 | 33.4% | 5.6 | 6.4% | 1.6 | 1.8% | 6.1 | 6.9% | 44.3 | 50.4% |
| TOTAL: | 365.0 | 44,705 | 122.5 | 7.1 | 5.8% | 31.9 | 26.1% | 5.6 | 4.6% | 1.6 | 1.3% | 8.0 | 6.6% | 68.2 | 55.7% |

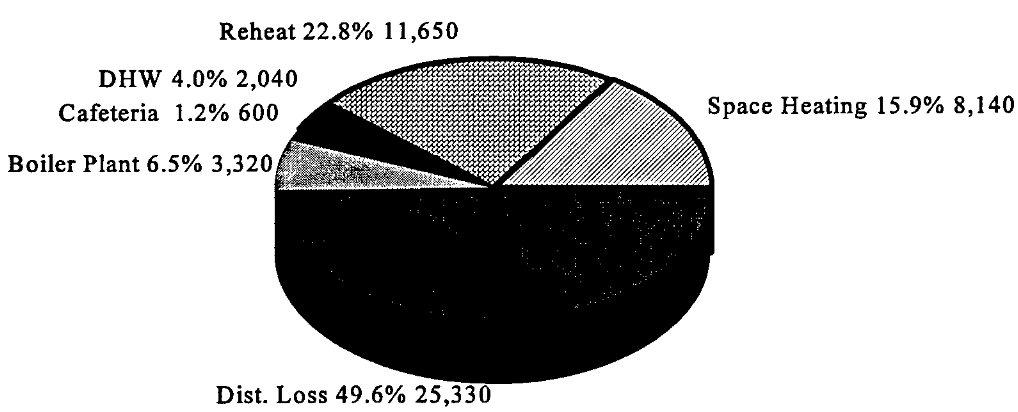
G:\4130.05\SS\UTILBIL\BOILLOG3.WK4

**Table 5.2.7.3, Building 2700 Boiler Plant**
**Steam Use Summary**

| Usage | Average mlbs/day | Average % | Total (mlbs/month) | Total (mlbs/yr) |
|---|---|---|---|---|
| Space Heating | 22.3 | 15.9% | 680 | 8,140 |
| Reheat | 31.9 | 22.8% | 970 | 11,650 |
| Domestic Hot Water | 5.6 | 4.0% | 170 | 2,040 |
| Cafeteria Use | 1.6 | 1.2% | 50 | 600 |
| Boiler Plant Use | 9.1 | 6.5% | 275 | 3,320 |
| Distribution Losses | 69.4 | 49.6% | 2,110 | 25,330 |
| Total | 139.9 | 100.0% | 4,255 | 51,080 |

Figure 5.2.7.4, Boiler 2700 Boiler Plant

*Steam Use Summary w/MCA Loads*



## 5.3 Heat Loss Model (Degree Day Method)

The Heat Loss Model as described in Section 2.5.3 of this report, is shown on the following page in Table 5.3.1. The mezzanine level is included with the totals for the first floor level. The peak estimated by the Heat Loss Model is about 8,700 mmBtu/hr (8,700 lbs/hr of steam). The annual Btu usage for space heating Building 2700 has been calculated to be 13,856 mmBtu per year, or 13,440 mcf of natural gas. The Heat Loss Model energy and associated cost values are considered to be higher (40% or more) than the actual amounts required for heating. Building 2700 has high internal heat gains which are not included in the Heat Loss Model. The steam model and the EZDOE model will reflect lower usage totals. Table 5.3.2 summarizes the Heat Loss Model results. These results are for comparison purposed only. Other models will be used for calculating energy savings and costs.

Note: The ventilation rates shown do not include the make-up ventilation air that is mixed and reheated for the cleanrooms on the second and fourth floors. They are treated separately in the reheat portion of the Steam Model only. Their rates and loads are estimated by the Steam Model and the EZDOE Model. The roof loss and infiltration are calculated from the cleanroom square footage in the heat loss model.

# Heat Loss Model (Degree Day Method)
## Table 5.3.1
## Ft. Monmouth, Myer Center - Bldg. 2700

| SPACE NAME | | EXTERIOR DATA: WALL HEIGHT FT | WALL LENGTH FT | WINDOW AREA SQ FT | DOOR AREA SQ FT | WALL AREA SQ FT | WALL U FAC | ROOF AREA SQ FT | VENTILATION, INFILTRATION INTERIOR DATA: CEILING HEIGHT FT | FLOOR AREA SQ FT | SPACE VOLUME CU FT | INF AIR CHANGE CFM | VENT AIR CFM | BELOW GRADE: WALL HT FT | WALL LENGTH FT | FLOOR AREA SQ FT | TOTAL HEAT LOSS BTU/HR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ground Floor | | 11.2 | 1,440 | 1,188 | 1,211 | 13,729 | 0.09 | 15,000 | 8.0 | 69,430 | 555,440 | 2,074 | 5,000 | 3 | 3,322 | 69,430 | |
| | BTU/HR | | | 40,511 | 75,082 | 76,608 | | 102,300 | | | | 138,851 | 334,800 | | 24,556 | 55,405 | 848,113 |
| | COST-$ | | | $468 | $868 | $886 | | $1,183 | | | | $1,606 | $3,872 | | $284 | $641 | $9,808 |
| First Floor | | 22.3 | 3,500 | 7,020 | 585 | 70,550 | 0.08 | 0 | 16.7 | 179,874 | 2,998,500 | 11,194 | 10,000 | 0 | 0 | 0 | |
| | BTU/HR | | | 239,382 | 36,270 | 349,928 | | 0 | | | | 749,577 | 669,600 | | 0 | 0 | 2,044,757 |
| | COST-$ | | | $2,768 | $419 | $4,047 | | $0 | | | | $8,668 | $7,743 | | $0 | $0 | $23,646 |
| Second Floor | | 15.3 | 3,500 | 7,020 | 0 | 46,635 | 0.08 | 0 | 9.7 | 144,067 | 1,393,128 | 5,201 | 13,000 | 0 | 0 | 0 | |
| | BTU/HR | | | 239,382 | 0 | 231,310 | | 0 | | | | 348,260 | 870,480 | | 0 | 0 | 1,689,431 |
| | COST-$ | | | $2,768 | $0 | $2,675 | | $0 | | | | $4,027 | $10,066 | | $0 | $0 | $19,537 |
| Third Floor | | 15.3 | 3,500 | 7,020 | 0 | 46,635 | 0.08 | 0 | 9.7 | 144,067 | 1,393,128 | 5,201 | 13,000 | 0 | 0 | 0 | |
| | BTU/HR | | | 239,382 | 0 | 231,310 | | 0 | | | | 348,260 | 870,480 | | 0 | 0 | 1,689,431 |
| | COST-$ | | | $2,768 | $0 | $2,675 | | $0 | | | | $4,027 | $10,066 | | $0 | $0 | $19,537 |
| Fourth Floor | | 15.3 | 3,500 | 7,020 | 0 | 46,635 | 0.08 | 150,000 | 9.7 | 144,067 | 1,393,128 | 5,201 | 9,000 | 0 | 0 | 0 | |
| | BTU/HR | | | 239,382 | 0 | 231,310 | | 1,023,000 | | | | 348,260 | 602,640 | | 0 | 0 | 2,444,591 |
| | COST-$ | | | $2,768 | $0 | $2,675 | | $11,830 | | | | $4,027 | $6,969 | | $0 | $0 | $28,270 |
| | | 0.0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | BTU/HR | | | 0 | 0 | 0 | | 0 | | | | 0 | 0 | | 0 | 0 | 0 |
| | COST-$ | | | $0 | $0 | $0 | | $0 | | | | $0 | $0 | | $0 | $0 | $0 |
| | | 0.0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | BTU/HR | | | 0 | 0 | 0 | | 0 | | | | 0 | 0 | | 0 | 0 | 0 |
| | COST-$ | | | $0 | $0 | $0 | | $0 | | | | $0 | $0 | | $0 | $0 | $0 |
| | | 0.0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | BTU/HR | | | 0 | 0 | 0 | | 0 | | | | 0 | 0 | | 0 | 0 | 0 |
| | COST-$ | | | $0 | $0 | $0 | | $0 | | | | $0 | $0 | | $0 | $0 | $0 |
| | | 0.0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | BTU/HR | | | 0 | 0 | 0 | | 0 | | | | 0 | 0 | | 0 | 0 | 0 |
| | COST-$ | | | $0 | $0 | $0 | | $0 | | | | $0 | $0 | | $0 | $0 | $0 |
| TOTALS | | | 15,440 | 29,268 | 1,796 | 224,184 | | 165,000 | | 681,505 | 7,733,300 | 28,871 | 50,000 | | 3,322 | 69,430 | |
| | BTU/HR | | | 998,039 | 111,352 | 1,120,465 | | 1,125,300 | | | | 1,933,207 | 3,348,000 | | 24,556 | 55,405 | 8,716,324 |
| | COST-$ | | | $11,541 | $1,288 | $12,957 | | $13,013 | | | | $22,356 | $38,717 | | $284 | $641 | $100,797 |

| | |
|---|---|
| OUTSIDE TEMPERATURE(°F) | 10 |
| INSIDE TEMPERATURE (°F) | 72 |
| DELT TEMPERATURE (°F) | 62 |
| HEATING DEGREE DAYS/YR. | 5,034 |
| FUEL COST, $/UNIT | $7.50 |
| HT VALUE, MMBTU/UNIT | 1.031 |
| SYSTEM EFFICIENCY (.XX) | 76.0% |
| $/MMBTU (WITH EFF.) | $9.57 |

| | |
|---|---|
| DOOR U FACTOR (BTU/SQFT*F*H) | 1 |
| WINDOW U FACTOR (BTU/SQFT*F*H) | 0.55 |
| ROOF U FACTOR (BTU/SQFT*F*H) | 0.11 |
| GRND FLOOR FACTOR (BTU/SQFT*H) | 0.4 |
| GRND WALL FACTOR (BTU/SQFT*H) | 0.4 |
| ANNUAL COST FACTOR ($/YR/BTU/HR) | 0.011564 |
| C (D) | 0.62 |

| | |
|---|---|
| WIND VELOCITY (MPH) | 15 |
| INFILTRATION AIR CHANGES/HR | 0.2 |
| INFILTRATION AIR CHANGE FACTOR | 0.003733 |
| WINTER GRND WATER TEMP (°F) | 50 |
| GROUND TEMP DELTA TEMP (°F) | 22 |
| GROUND WALL FACTOR | 0.3 |
| BELOW GRADE DEL TEMP (AD USTED) | 6.6 |
| GROUND FLOOR FACTOR | 1.995 |

| | |
|---|---|
| HEAT LOSS, MMBTU/YR | 13,856 |
| HEAT LOSS,BTU/DEG DA | 2,752,523 |
| UNITS FUEL/DEG DAY | 2.67 |
| UNITS FUEL/YR | 13,440 |
| COST, $/SF/YR | $0.15 |
| COST, $/CF/YR | $0.0130 |
| BTU/HR/SF: | 13 |

ENTECH ENGINEERING INC.

05-Jul-96

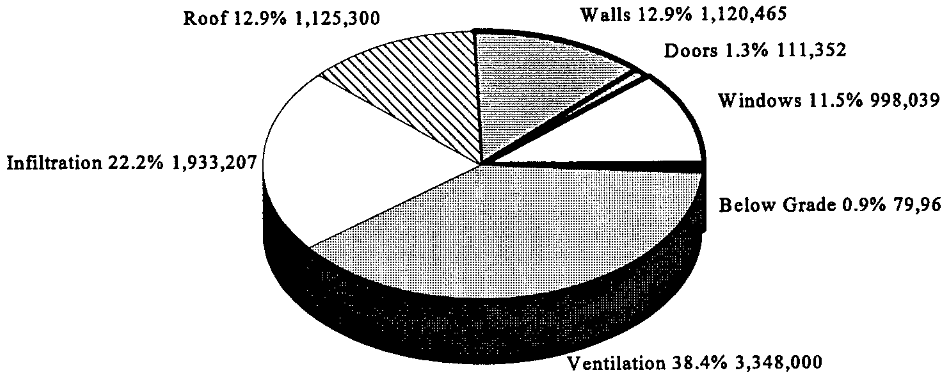
**Table 5.3.2, Building 2700 Boiler Plant**
**Heat Loss Model Results**

| Area | Loss (Btuh) |
|---|---|
| Windows | 998,039 |
| Doors | 111,352 |
| Walls | 1,120,465 |
| Roof | 1,125,300 |
| Infiltration | 1,933,207 |
| Ventilation | 3,348,000 |
| Below Grade | 79,961 |
| Totals | 8,716,324 |

The above table indicates the design day heat loss is approximately 8.7 mmBtu or 8,700 lb/hr of steam for heating Building 2700, which is slightly less than the connected loads in Tables 3.4.1.1 and 3.4.1.2. With the other loads included, the actual peak is approximately 12,000-14,000 lb/hr during a normal winter. In January of 1994, the peak actually was close to 16,000 lb/hr. That period of time set fuel consumption records throughout the northeast United States. Figure 5.4.3 graphically displays the Heat Loss Model peak demand results.

## Figure 5.3.3, Building 2700 (Myer Center)

*Heat Loss Model Results*




Typical of many buildings, Figure 5.3.3 indicates that ventilation and infiltration loads constitute most of the building heating load. The estimates will be compared to EZDOE results later in Section 5.

## 5.4 EZDOE (Heat Gain/Heat Loss Model)

### 5.4.1 General

The following sub-sections describe the setup and results for modeling the heating and cooling requirements for Building 2700. Format, reference information and assumptions are presented as input for the EZDOE modeling. Loads, peaks and other findings are presented as results.

### 5.4.2 Description - Building 2700 Zones and Systems

Modeling software as sophisticated as EZDOE requires the user to balance the level of detail and accuracy against the feasibility of modeling within the bounds of the project scope. For this project the building was portioned into zones by floor that were served by systems and central plant equipment that are categorically the same. The basis for this report is a combination of the walk through findings and the data developed in Section 3 outlining the building's equipment and operation. The breakdown is as follows:

1. Zones that are supported by the MCA two-pipe system utilizing steam generated heating water and the central chiller plant supplied cooling water. Note: All types of areas utilize MCA-HW fin-tube radiation for skin loss heating.

2. Zones served by air handlers utilizing steam for heating or reheat, and a coil for cooling purposes supported by a variety of refrigeration equipment and condensers. Cooling coil fluids are supplied by chilled water or DX (direct expansion) refrigerant systems that are either cooled by air or water. Throughout this section we will categorically refer to these loads as DX with miscellaneous cooling or just DX.

3. Zones supported by steam feed devices for heating only.

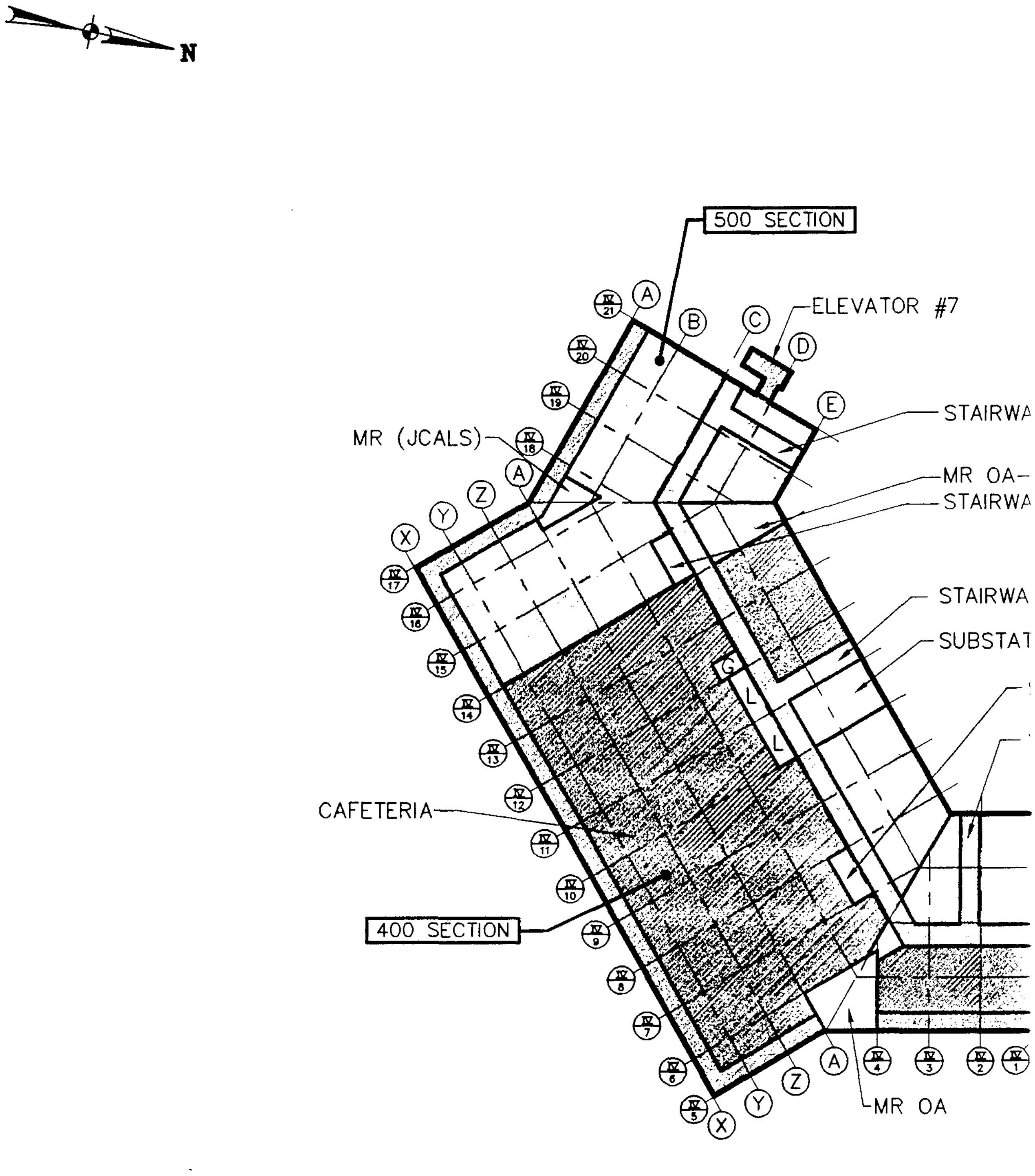
4. Zones that are cooling only because of the low heat loss expected as compared to higher internal loads gained. These recirculation units use a variety of cooling systems (DX w/misc. cooling).

5. Zones supported by MCA-HW heating only, utilizing fin-tube radiation and convectors.

6. Zones that are not supported by any of the heating or cooling devices identified as installed and operating.

Separating the MCA systems from the others is necessary for determining their contribution to the loads for the entire building. With the existing stand alone plant for MCA-CHW in place, and the fact that new boilers have been targeted for supporting the MCA-HW system alone, this separation was imperative to properly analyze the building for energy and cost savings. Refer to the following figures for the various zones defined for each floor in Building 2700. The associated room numbers for the figures can be acquired from the Fort Monmouth supplied sketches for Building 2700 in Appendix 8.10

| | |
|---|---|
| Figure 5.4.2.1 | Building 2700 HVAC Systems (basement plan) |
| Figure 5.4.2.2 | Building 2700 HVAC Systems (first floor plan) |
| Figure 5.4.2.3 | Building 2700 HVAC Systems (mezzanine floor plan) |
| Figure 5.4.2.4 | Building 2700 HVAC Systems (second floor plan) |
| Figure 5.4.2.5 | Building 2700 HVAC Systems (third floor plan) |
| Figure 5.4.2.6 | Building 2700 HVAC Systems (fourth floor plan) |




## HVAC SYSTEMS – BA

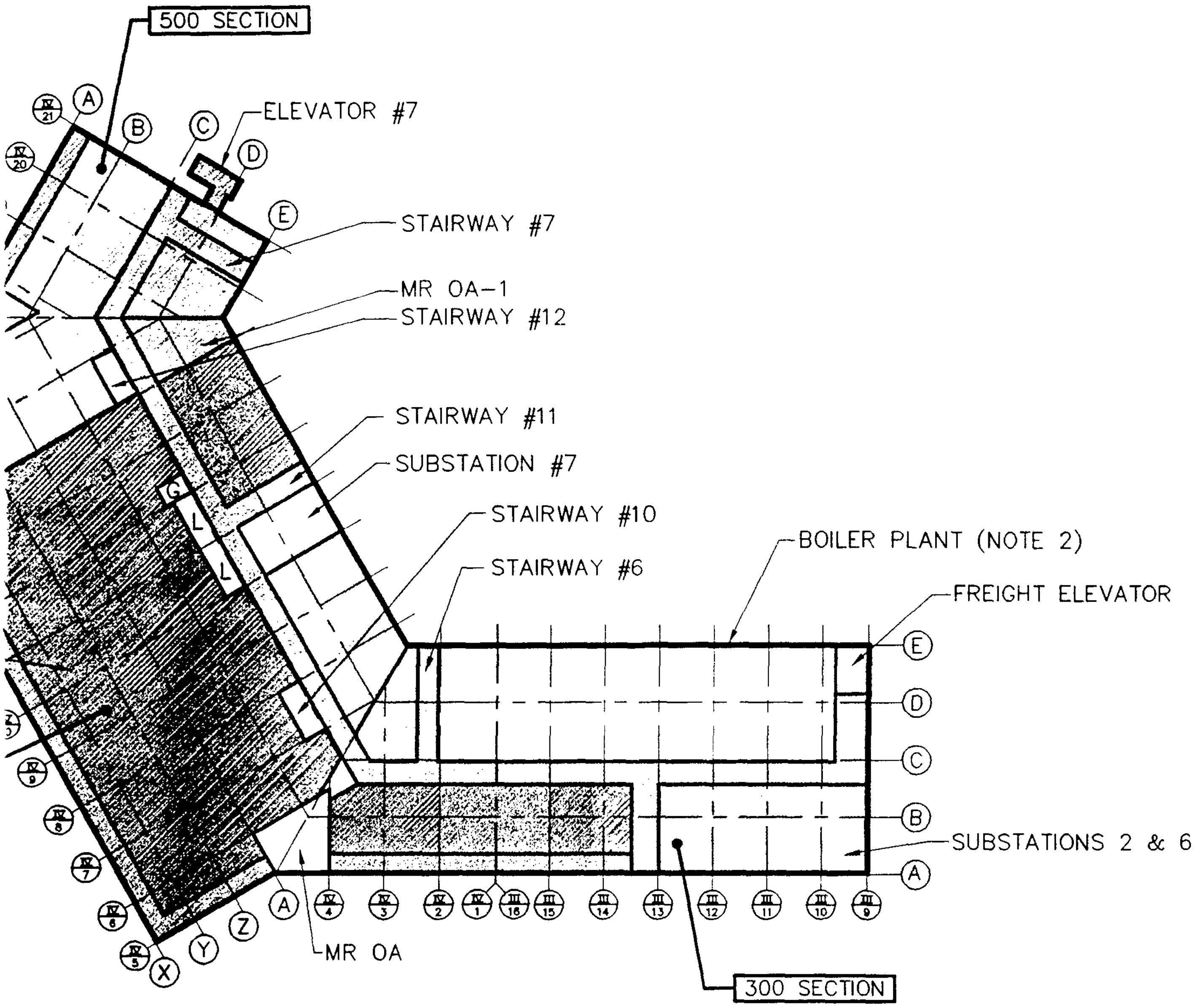
0 20' 40' 80'
GRAPHIC SCALE: 1"=80'



①

## NOTES

1. REFER TO T
   APPENDIX E
2. PRESENTLY
   THE BOILER
   THE SPACE




U.S. A
FORT I

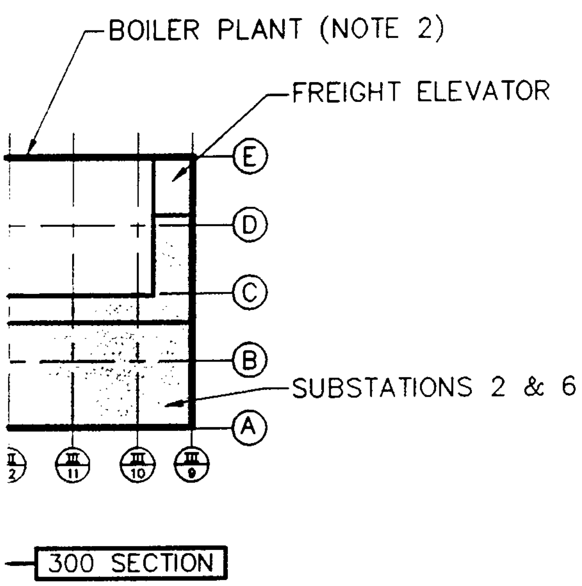
DATE
2/14/9
SCALE
1" = 80'

# HVAC SYSTEMS – BASEMENT PLAN

20' 40' 80'
GRAPHIC SCALE: 1"=80'

# NOTES

1. REFER TO THE FLOOR BY FLOOR LAYOUT DRAWINGS IN APPENDIX 8.10 FOR LOCATION OF ROOM NUMBERS.
2. PRESENTLY THERE IS NO METHOD OF SPACE HEATING IN THE BOILER PLANT. BOILER AND PIPE LOSSES HEAT THE SPACE AT THIS TIME.




PLAN

- MCA 2-PIPE (HEATING/COOLING)
- STEAM HEAT ONLY
- STEAM HEAT/REHEAT W/ MISC. COOLING
- COOLING ONLY (DX & MISC. CHILLERS)
- MCA HEATING ONLY (CONVECTORS, FINNED TUBE, ETC.)
- UNHEATED SPACE

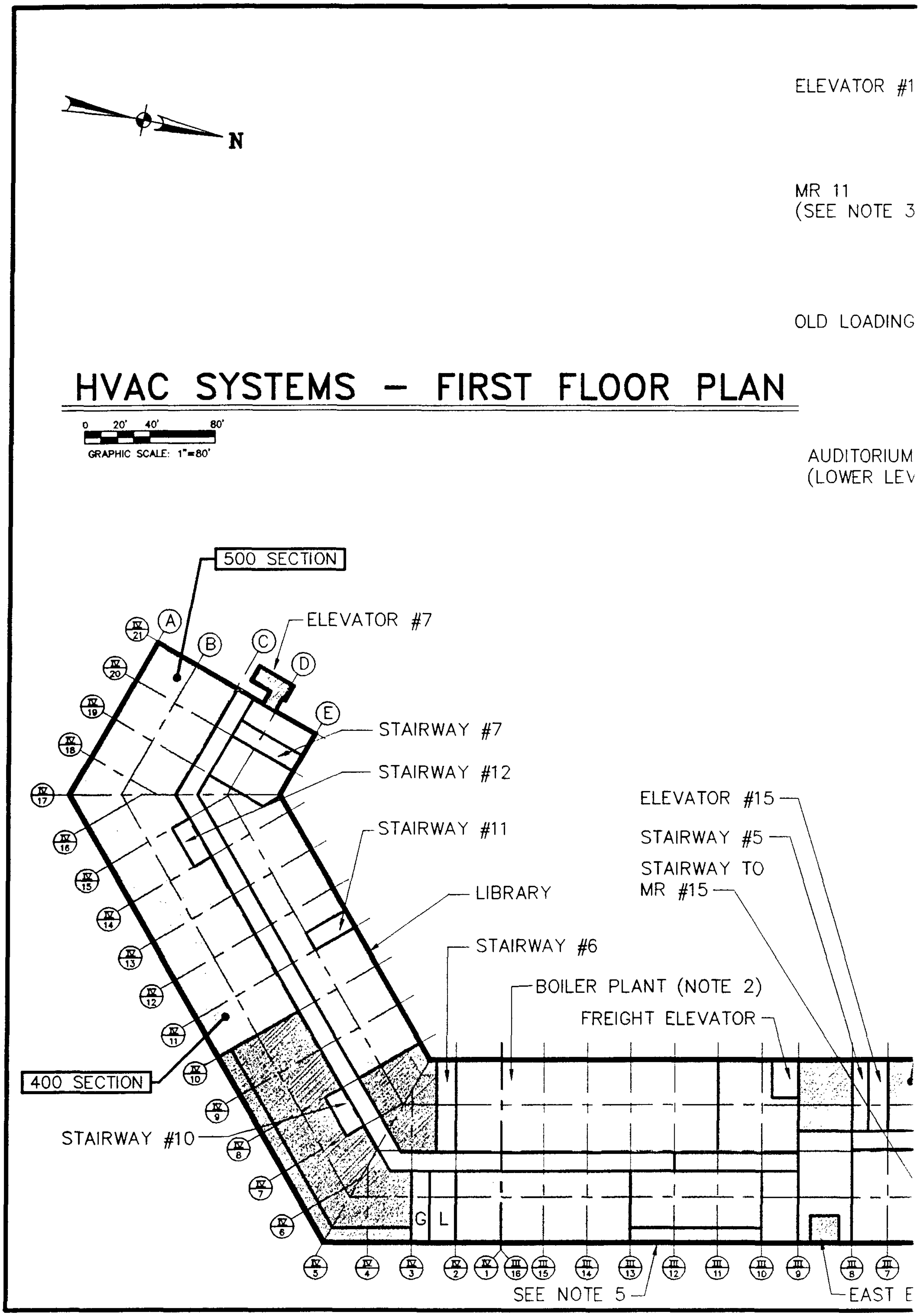
**U.S. ARMY ENGINEER DISTRICT, MOBILE/NORFOLK**

FORT MONMOUTH NEW JERSEY

**BUILDING 2700 HVAC SYSTEMS**
**BASEMENT PLAN**

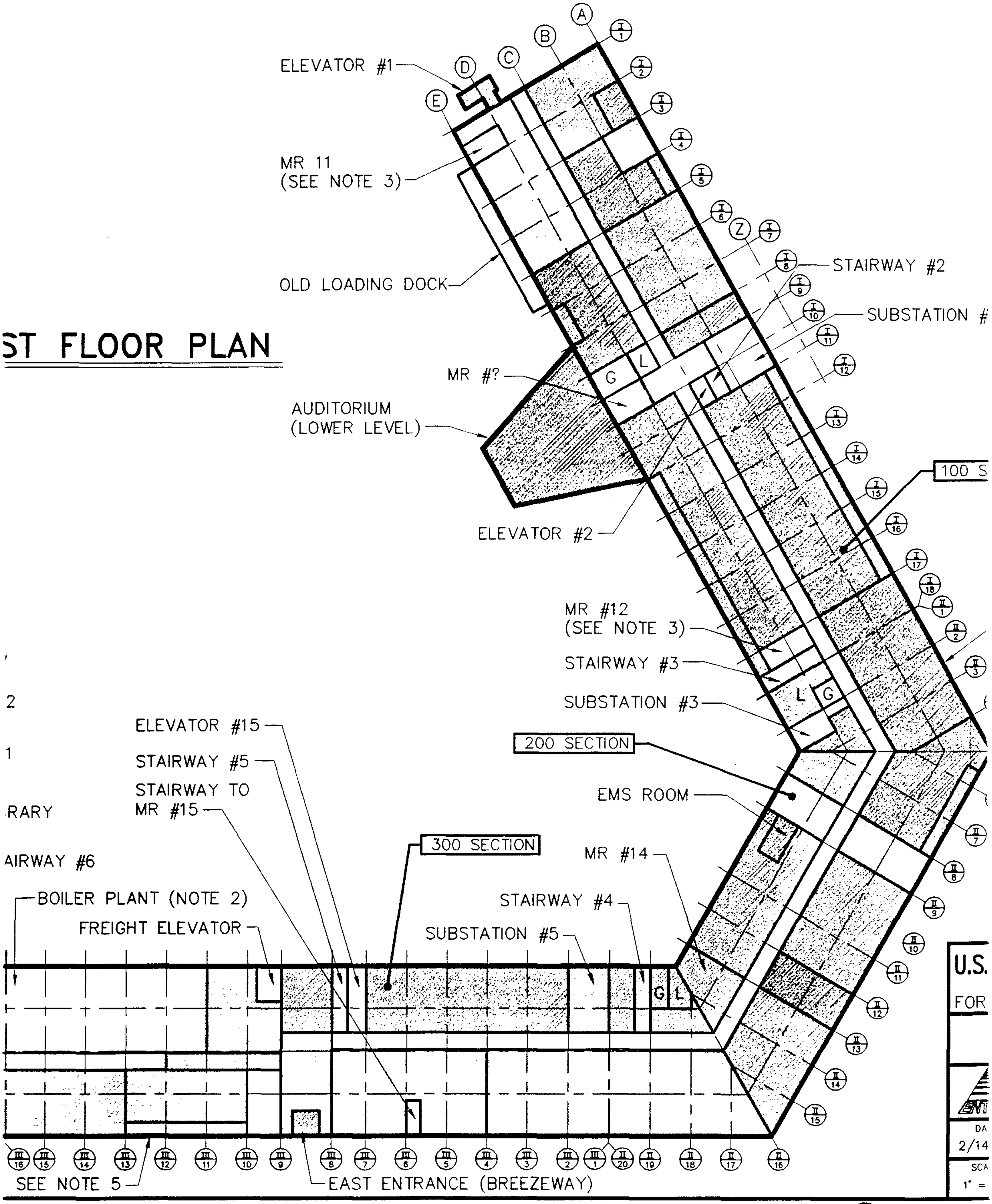

**ENTECH Engineering Inc.**
4 SOUTH FOURTH STREET P.O. BOX 32 READING, PA 19603 (610) 373-6667
1851 WEST END AVE P.O. BOX 389 POTTSVILLE, PA 17901 (717) 628-5655


| DATE | DRAWN BY | CHECKED BY | PROJ. MGR. | APPROVED | |
|---|---|---|---|---|---|
| 2/14/97 | RJI | JED | ELC | | |
| SCALE | PROJECT NO. | | DRAWING NO. | | REVISION |
| 1" = 80' | 4130.05 | | FIG. 5.4.2.1 | | 0 |



N
ELEVATOR #1
MR 11
(SEE NOTE 3
OLD LOADING
HVAC SYSTEMS - FIRST FLOOR PLAN
0 20' 40' 80'
GRAPHIC SCALE: 1"=80'
AUDITORIUM
(LOWER LEV
500 SECTION
ELEVATOR #7
STAIRWAY #7
STAIRWAY #12
STAIRWAY #11
LIBRARY
STAIRWAY #6
BOILER PLANT (NOTE 2)
FREIGHT ELEVATOR
ELEVATOR #15
STAIRWAY #5
STAIRWAY TO
MR #15
400 SECTION
STAIRWAY #10
G
L
SEE NOTE 5
EAST E
A
B
C
D
E

# ST FLOOR PLAN

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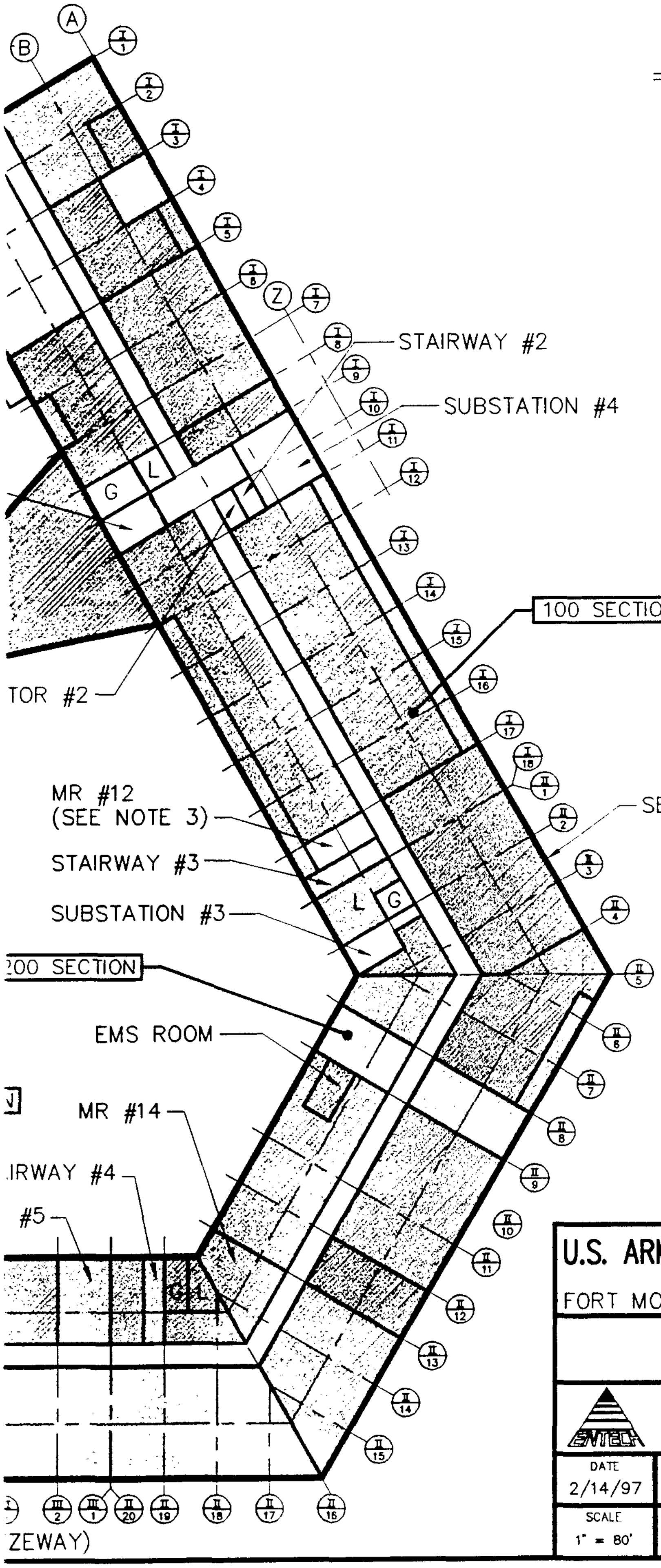
②




# NOTES

1. REFER TO THE FLOOR BY FLOOR LAYOUT DRAWINGS IN APPENDIX 8.10 FOR LOCATION OF ROOM NUMBERS.
2. PRESENTLY THERE IS NO METHOD OF SPACE HEATING IN THE BOILER PLANT. BOILER LOSSES HEAT THE SPACE AT THIS TIME.
3. THIS AREA WAS MODELED AS BLUE (MCA HEATING ONLY) IN EZDOE.
4. THIS AREA FROM I 17 TO II 4 WAS MODELED IN EZDOE AS BROWN (STEAM HEAT/REHEAT W/ MISC. COOLING).
5. THIS AREA FROM III 10 TO III 13 WAS MODELED IN EZDOE AS DX COOLING WITH MCA HEATING ONLY CONVECTORS (BASEBOARD).

- MCA 2-PIPE (HEATING/COOLING)
- STEAM HEAT ONLY
- STEAM HEAT/REHEAT W/ MISC. COOLING
- COOLING ONLY (DX & MISC. CHILLERS)
- MCA HEATING ONLY (CONVECTORS, FINNED TUBE, ETC.)
- UNHEATED SPACE

**U.S. ARMY ENGINEER DISTRICT, MOBILE/NORFOLK**

FORT MONMOUTH NEW JERSEY

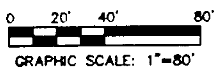
**BUILDING 2700 HVAC SYSTEMS**
**FIRST FLOOR PLAN**

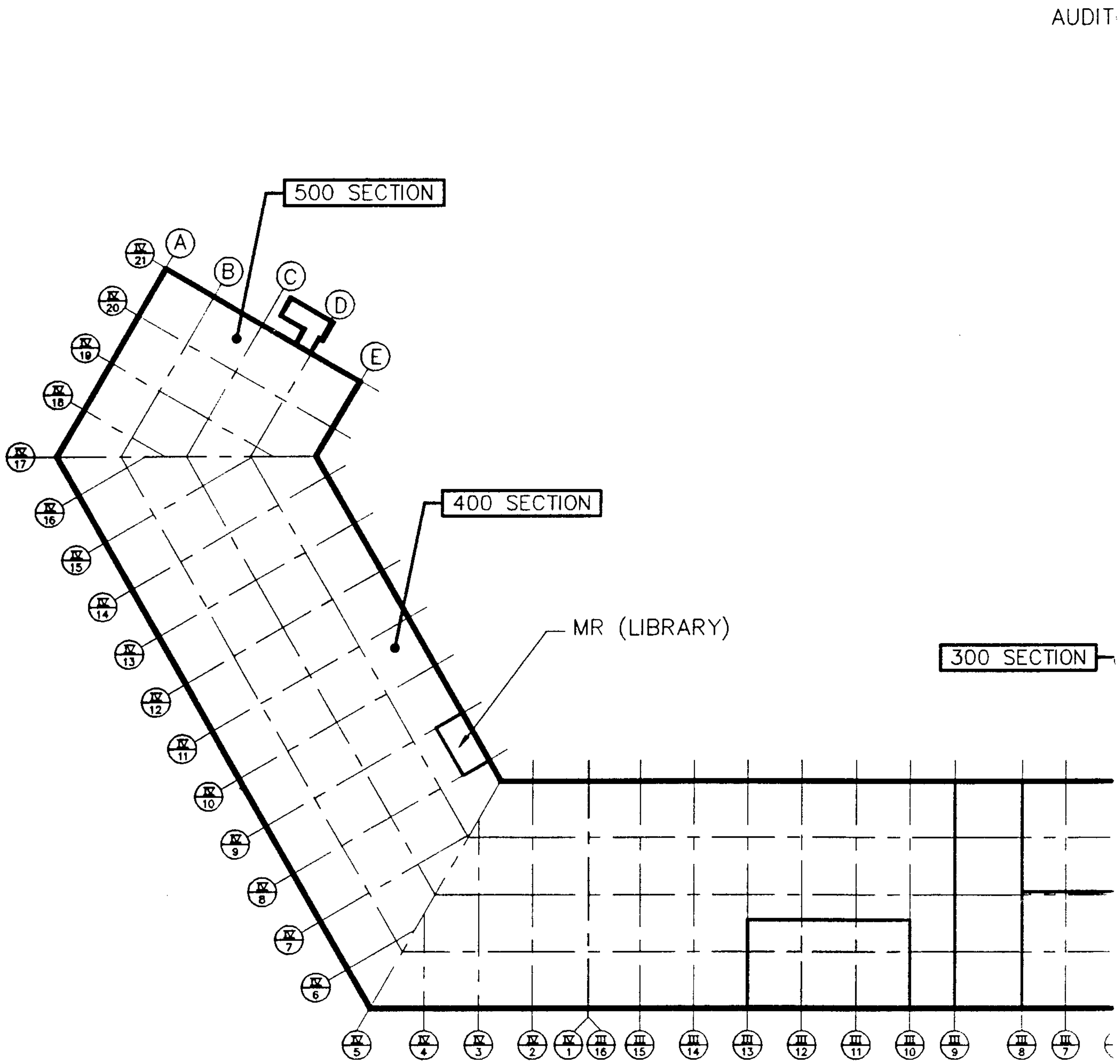
**ENTECH Engineering Inc.**

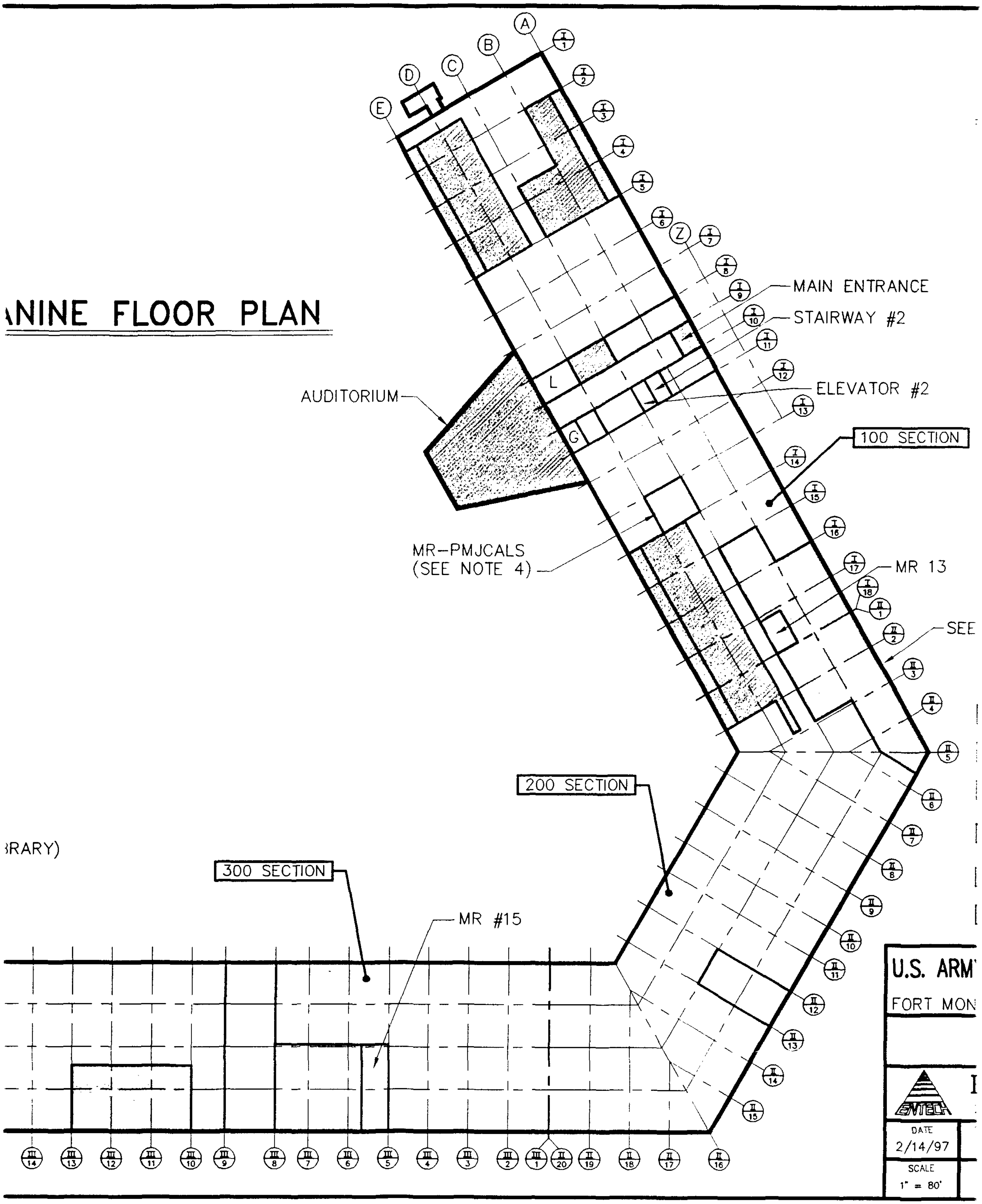
4 SOUTH FOURTH STREET P.O. BOX 32 READING, PA 19603 (610) 373-6667
1851 WEST END AVE P.O. BOX 389 POTTSVILLE, PA 17901 (717) 628-5655

| DATE | DRAWN BY | CHECKED BY | PROJ. MGR. | APPROVED | |
|---|---|---|---|---|---|
| 2/14/97 | RJI | JED | ELC | | |
| SCALE | PROJECT NO. | | DRAWING NO. | | REVISION |
| 1" = 80' | 4130.05 | | FIG. 5.4.2.2 | | 0 |


# HVAC SYSTEMS – MEZZANINE FLOOR PLAN

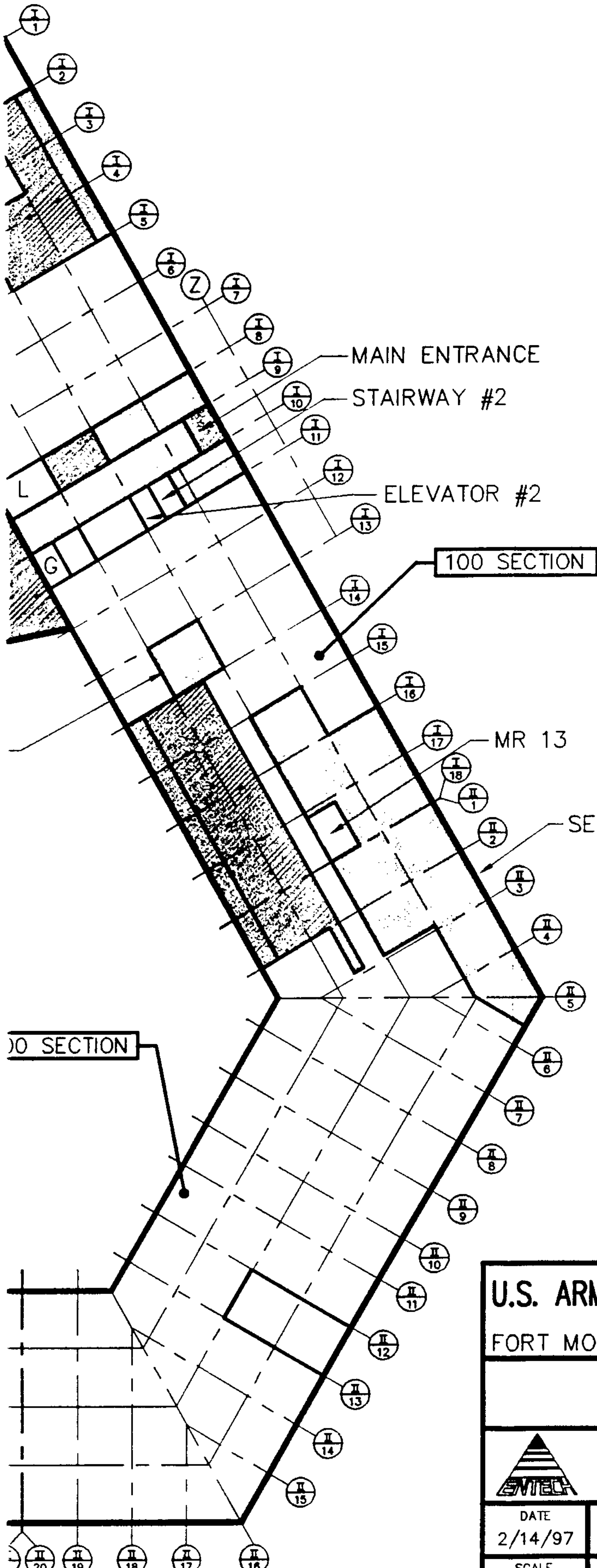




ANINE FLOOR PLAN
MAIN ENTRANCE
STAIRWAY #2
AUDITORIUM
ELEVATOR #2
100 SECTION
MR-PMJCALS
(SEE NOTE 4)
MR 13
SEE
200 SECTION
RARY)
300 SECTION
MR #15
L
G
U.S. ARM
FORT MON
DATE
2/14/97
SCALE
1" = 80'

2




# NOTES

1. REFER TO THE FLOOR BY FLOOR LAYOUT DRAWINGS IN APPENDIX 8.10 FOR LOCATION OF ROOM NUMBERS.
2. THE MEZZANINE LEVEL IS IN THE UPPER ELEVATION OF THE FIRST FLOOR LEVEL.
3. THIS AREA FROM I 15 TO II 5 WAS MODELED IN EZDOE AS BROWN (STEAM HEAT/REHEAT W/ MISC. COOLING).
4. THIS AREA WAS NOT INCLUDED IN THE LIGHT BROWN (MCA 2-PIPE SYSTEM) MODELING IN EZDOE.

- MCA 2-PIPE (HEATING/COOLING)
- STEAM HEAT ONLY
- STEAM HEAT/REHEAT W/ MISC. COOLING
- COOLING ONLY (DX & MISC. CHILLERS)
- MCA HEATING ONLY (CONVECTORS, FINNED TUBE, ETC.)
- UNHEATED SPACE

**U.S. ARMY ENGINEER DISTRICT, MOBILE/NORFOLK**

FORT MONMOUTH NEW JERSEY

**BUILDING 2700 HVAC SYSTEMS**
**MEZZANINE FLOOR PLAN**

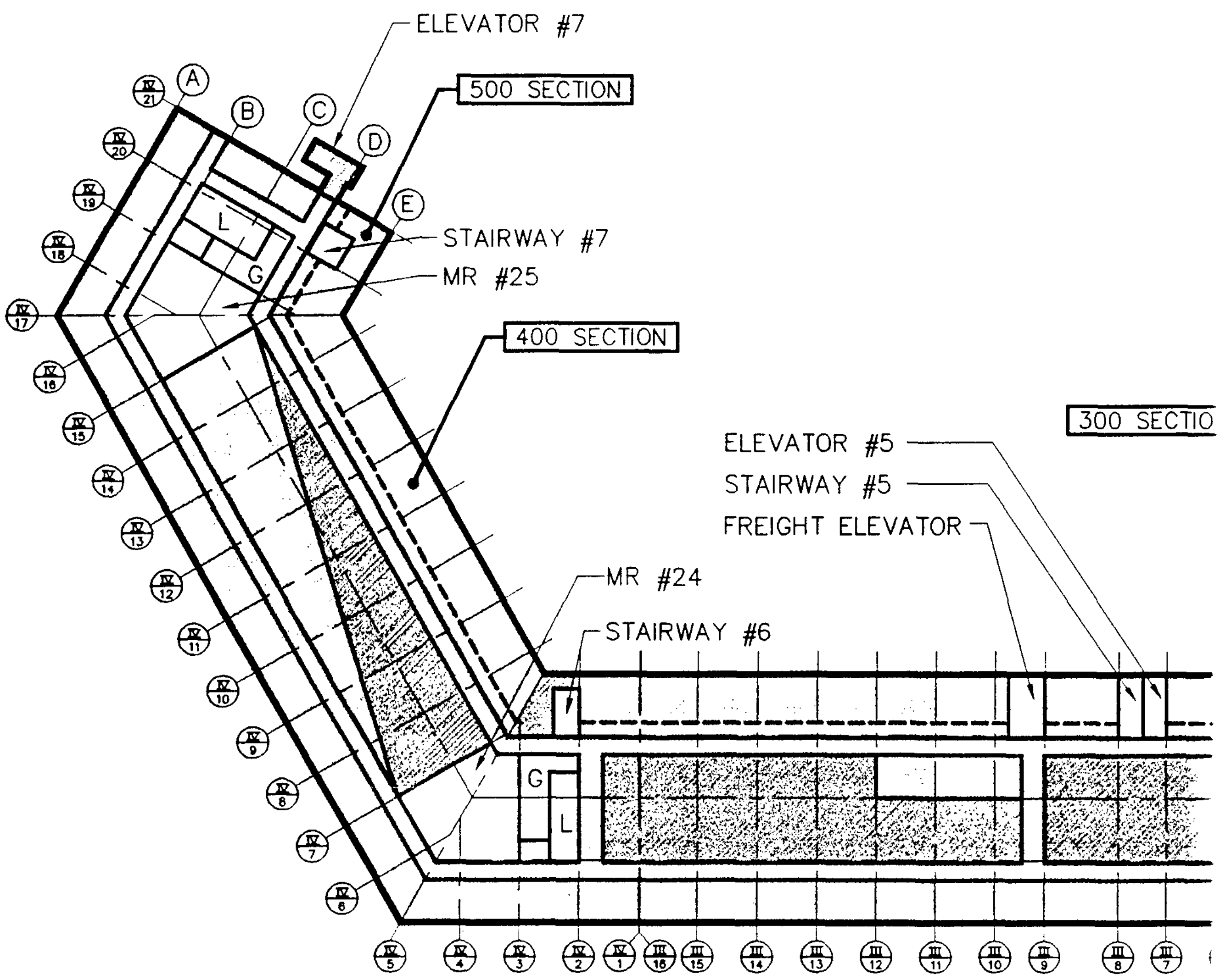
**ENTECH Engineering Inc.**
4 SOUTH FOURTH STREET P.O. BOX 32 READING, PA 19603 (610) 373-6667
1851 WEST END AVE P.O. BOX 389 POTTSVILLE, PA 17901 (717) 628-5655

| DATE | DRAWN BY | CHECKED BY | PROJ. MGR. | APPROVED | |
|---|---|---|---|---|---|
| 2/14/97 | RJI | JED | ELC | | |

| SCALE | PROJECT NO. | DRAWING NO. | REVISION |
|---|---|---|---|
| 1" = 80' | 4130.05 | FIG. 5.4.2.3 | 0 |


# HVAC SYSTEMS – SECOND FLOOR PLAN

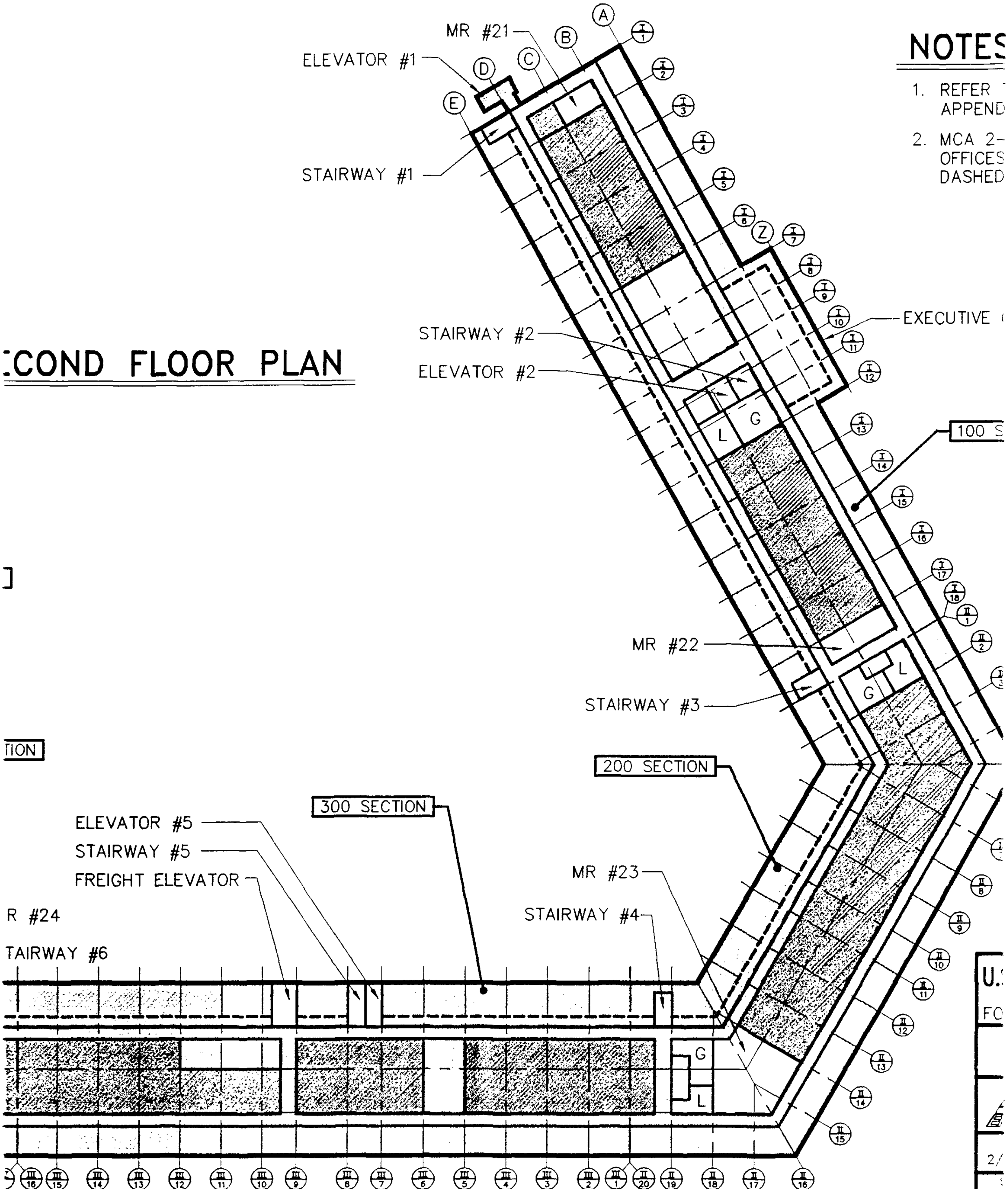
0 20' 40' 80'
GRAPHIC SCALE: 1"=80'






1

## :COND FLOOR PLAN




## NOTES

1. REFER
APPEND
2. MCA 2-
OFFICES
DASHED

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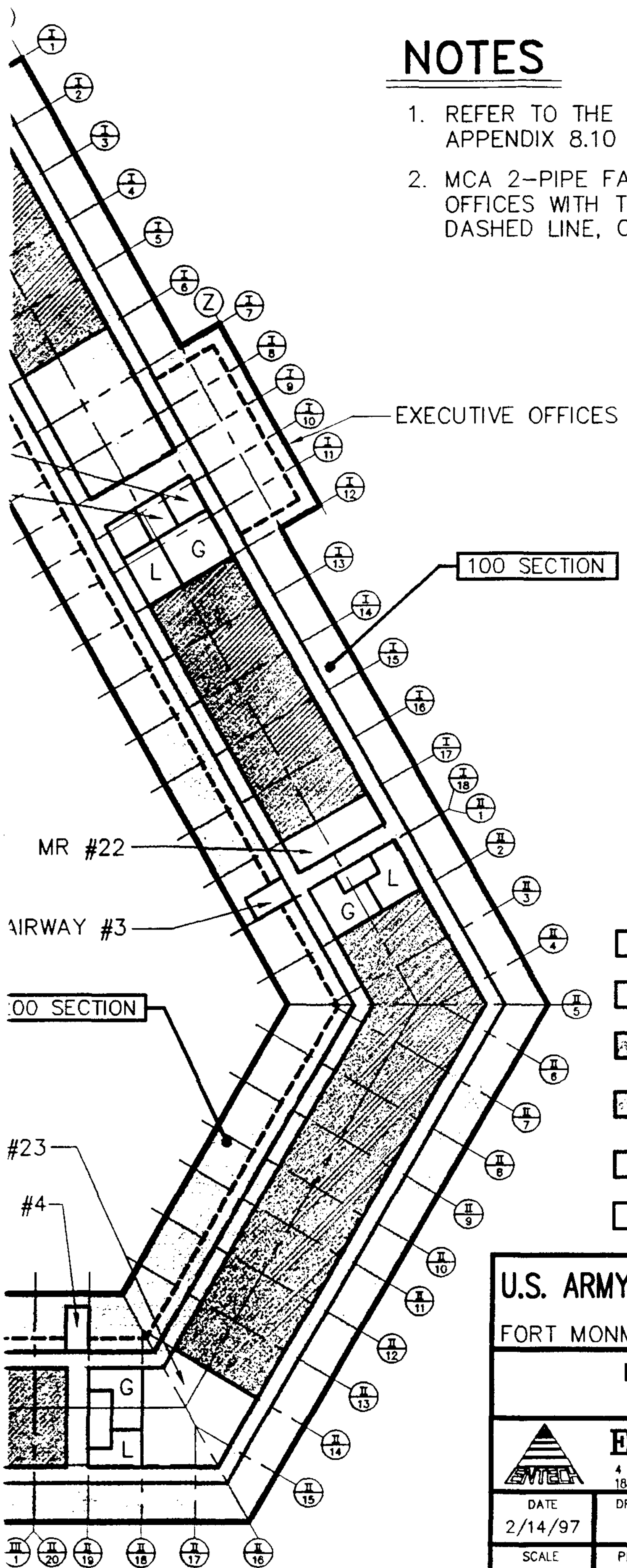
FO
2/

## NOTES

1. REFER TO THE FLOOR BY FLOOR LAYOUT DRAWINGS IN APPENDIX 8.10 FOR LOCATION OF ROOM NUMBERS.
2. MCA 2-PIPE FAN COILS CONDITION ALL PERIMETER OFFICES WITH THE EXCEPTION OF A STRIP NOTED BY A DASHED LINE, OUT TO THE CORRIDOR AREAS.




- MCA 2-PIPE (HEATING/COOLING)
- STEAM HEAT ONLY
- STEAM HEAT/REHEAT W/ MISC. COOLING
- COOLING ONLY (DX & MISC. CHILLERS)
- MCA HEATING ONLY (CONVECTORS, FINNED TUBE, ETC.)
- UNHEATED SPACE

**U.S. ARMY ENGINEER DISTRICT, MOBILE/NORFOLK**

FORT MONMOUTH NEW JERSEY

**BUILDING 2700 HVAC SYSTEMS SECOND FLOOR PLAN**

**ENTECH Engineering Inc.**
4 SOUTH FOURTH STREET P.O. BOX 32 READING, PA 19603 (610) 373-6667
1851 WEST END AVE P.O. BOX 389 POTTSVILLE, PA 17901 (717) 628-5655

| DATE | DRAWN BY | CHECKED BY | PROJ. MGR. | APPROVED | |
|---|---|---|---|---|---|
| 2/14/97 | RJI | JED | ELC | | |

| SCALE | PROJECT NO. | DRAWING NO. | REVISION |
|---|---|---|---|
| 1" = 80' | 4130.05 | FIG. 5.4.2.4 | 0 |

(3)

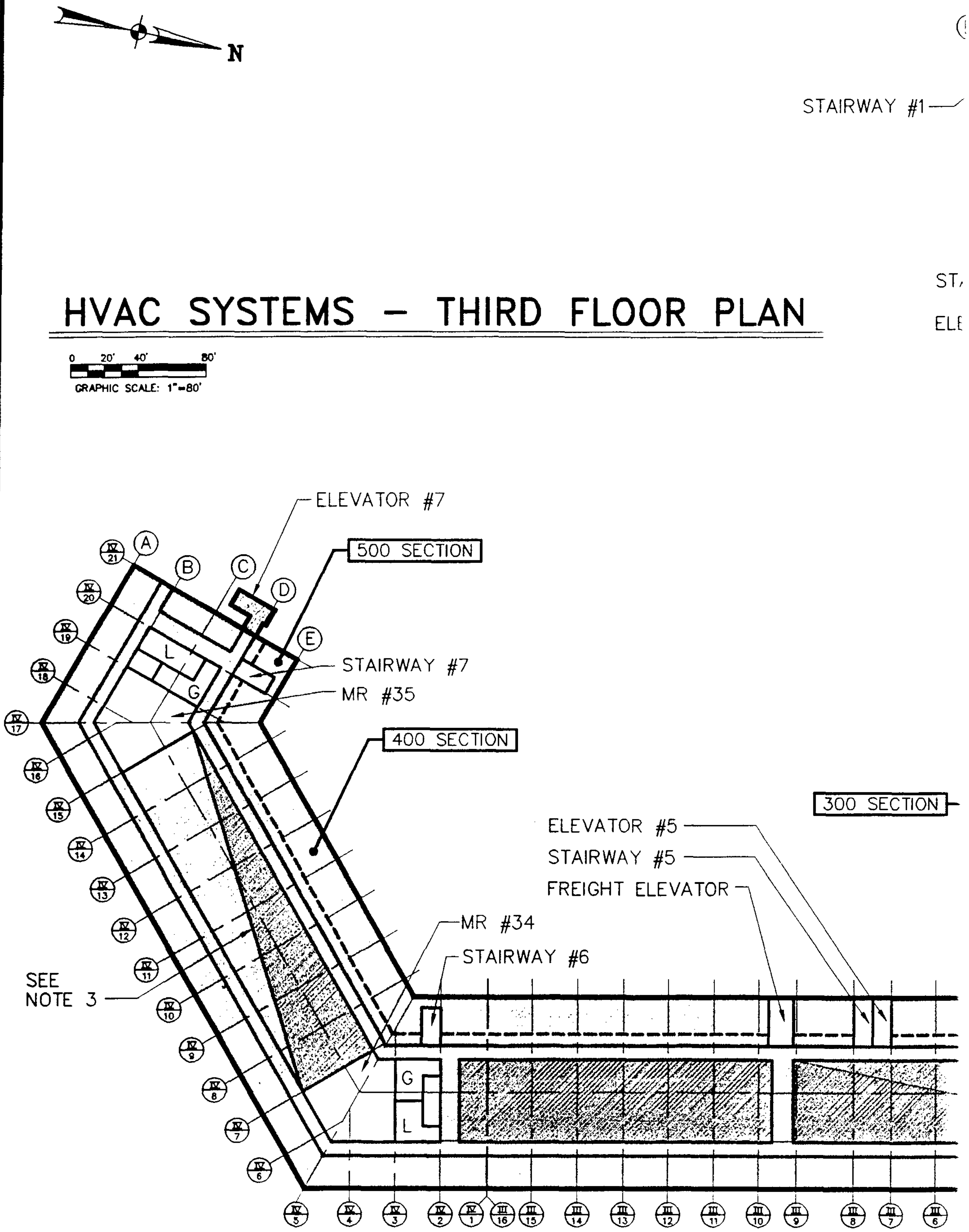
ELEVATOR #1

STAIRWAY #1

# HVAC SYSTEMS – THIRD FLOOR PLAN

0 20' 40' 80'

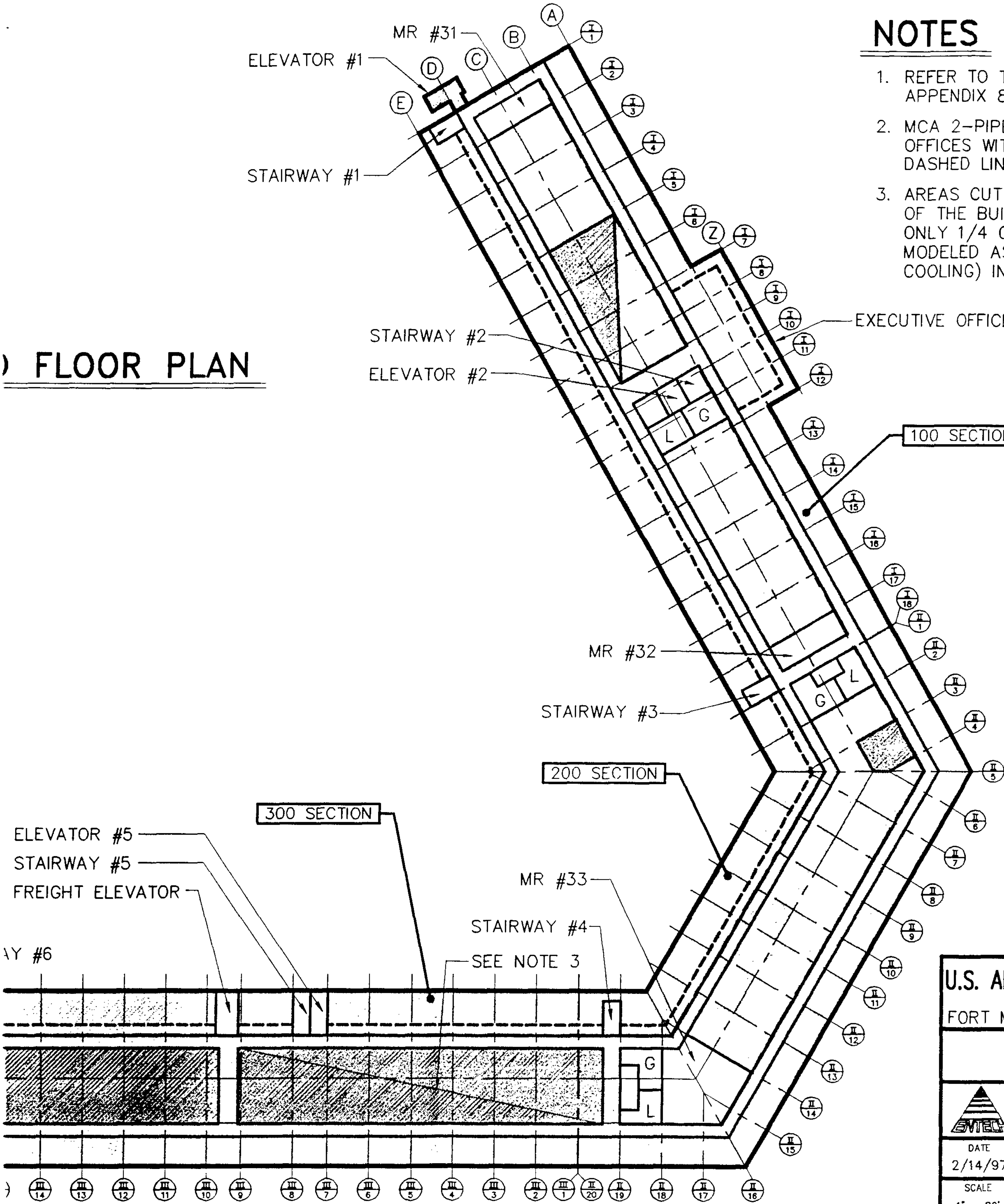
GRAPHIC SCALE: 1"=80'






1

# ) FLOOR PLAN




## NOTES

1. REFER TO TH
APPENDIX 8.
2. MCA 2-PIPE
OFFICES WITH
DASHED LINE
3. AREAS CUT I
OF THE BUIL
ONLY 1/4 OF
MODELED AS
COOLING) IN

U.S. AR
FORT M

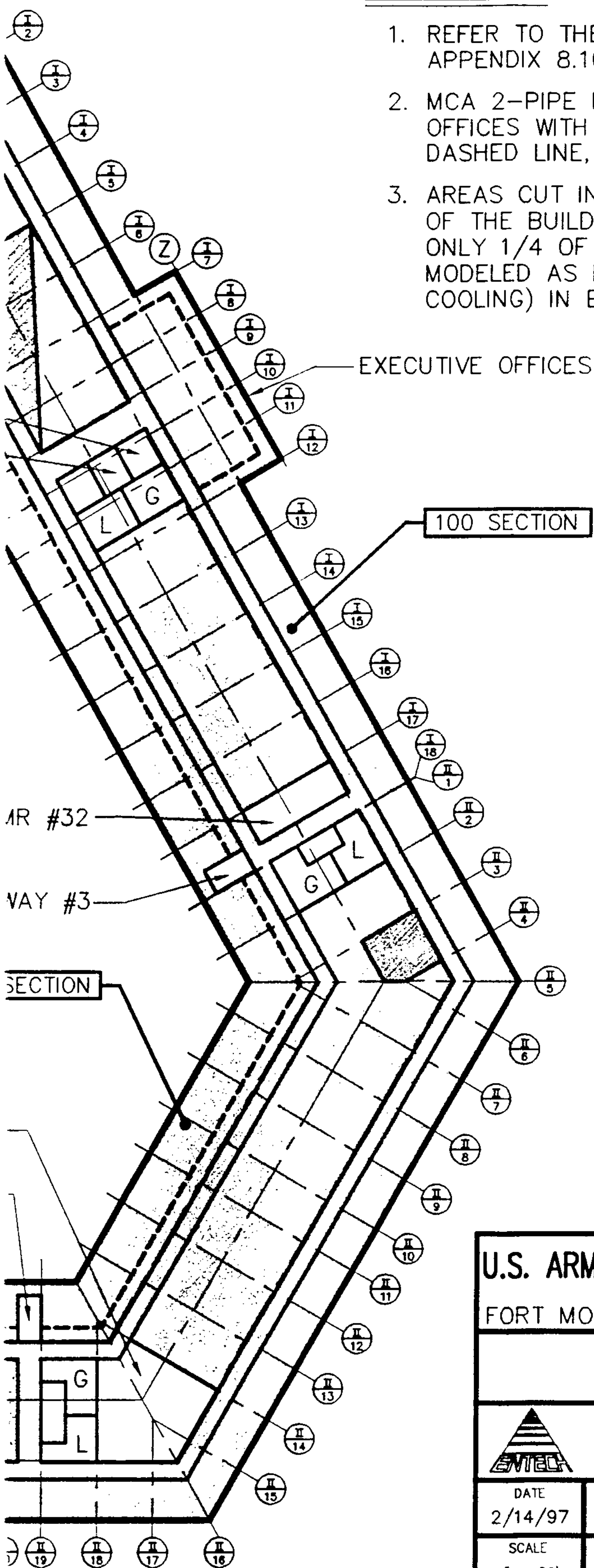
ENTECH

DATE
2/14/97

SCALE
1" = 80'

# NOTES

1. REFER TO THE FLOOR BY FLOOR LAYOUT DRAWINGS IN APPENDIX 8.10 FOR LOCATION OF ROOM NUMBERS.
2. MCA 2-PIPE FAN COILS CONDITION ALL PERIMETER OFFICES WITH THE EXCEPTION OF A STRIP NOTED BY A DASHED LINE, OUT TO THE CORRIDOR AREAS.
3. AREAS CUT IN HALF BY A DIAGONAL REPRESENT PARTS OF THE BUILDING SUPPORTED BY TWO HVAC SYSTEMS. ONLY 1/4 OF THE AREA FROM II 20 TO III 9 WAS MODELED AS BROWN (STEAM HEAT/REHEAT W/ MISC. COOLING) IN EZDOE.




- MCA 2-PIPE (HEATING/COOLING)
- STEAM HEAT ONLY
- STEAM HEAT/REHEAT W/ MISC. COOLING
- COOLING ONLY (DX & MISC. CHILLERS)
- MCA HEATING ONLY (CONVECTORS, FINNED TUBE, ETC.)
- UNHEATED SPACE

**U.S. ARMY ENGINEER DISTRICTS, MOBILE/NORFOLK**

FORT MONMOUTH — NEW JERSEY

**BUILDING 2700 HVAC SYSTEMS**
**THIRD FLOOR PLAN**

**ENTECH Engineering Inc.**

4 SOUTH FOURTH STREET P.O. BOX 32 READING, PA 19603 (610) 373-6667
1851 WEST END AVE P.O. BOX 389 POTTSVILLE, PA 17901 (717) 628-5655

| DATE | DRAWN BY | CHECKED BY | PROJ. MGR. | APPROVED |
|---|---|---|---|---|
| 2/14/97 | RJI | JED | ELC | |

| SCALE | PROJECT NO. | DRAWING NO. | REVISION |
|---|---|---|---|
| 1" = 80' | 4130.05 | FIG. 5.4.2.5 | 0 |

ELEVATOR #1 —

STAIRWAY #1 —

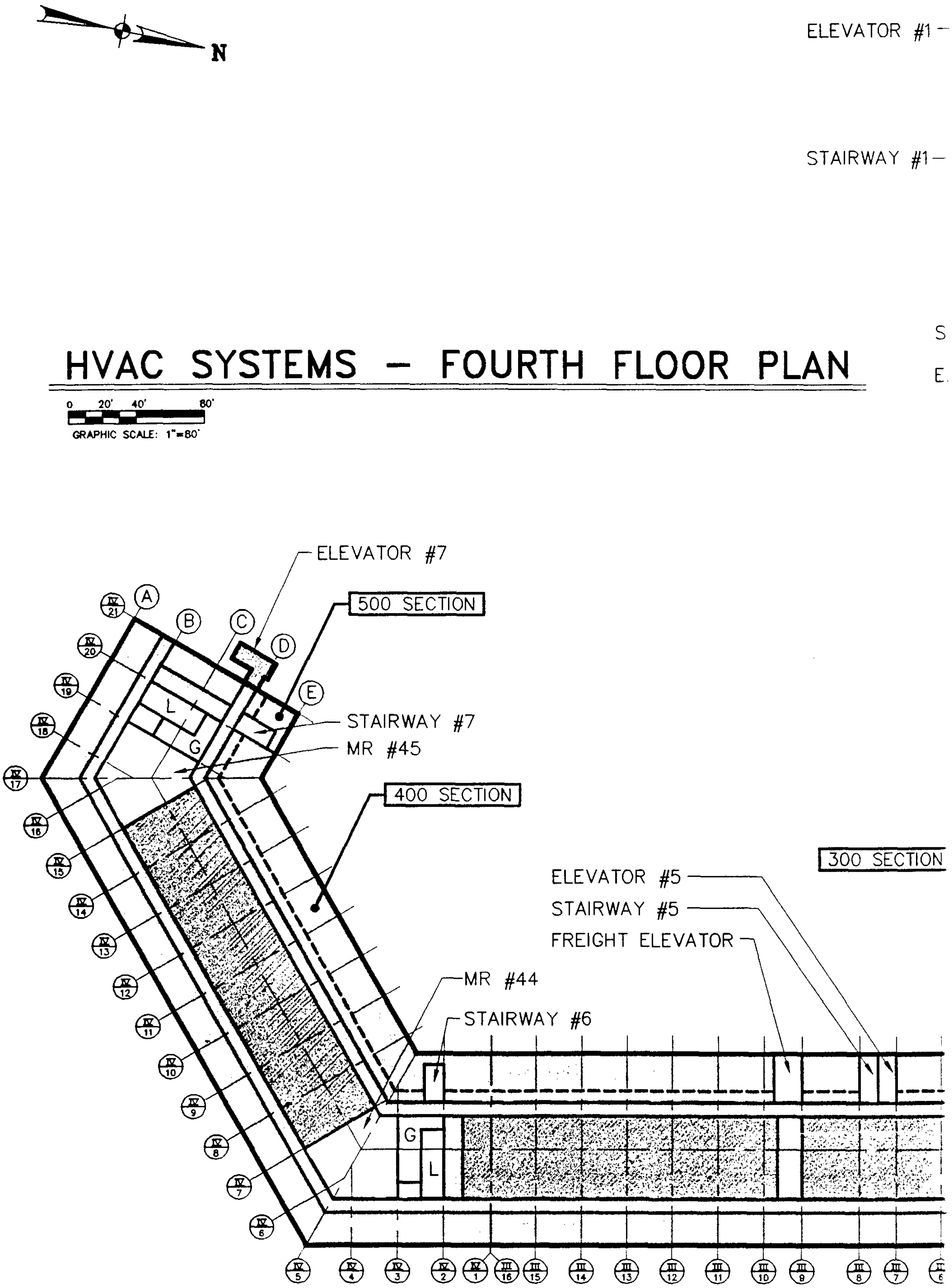
S

E.

# HVAC SYSTEMS – FOURTH FLOOR PLAN

0 20' 40' 80'

GRAPHIC SCALE: 1"=80'



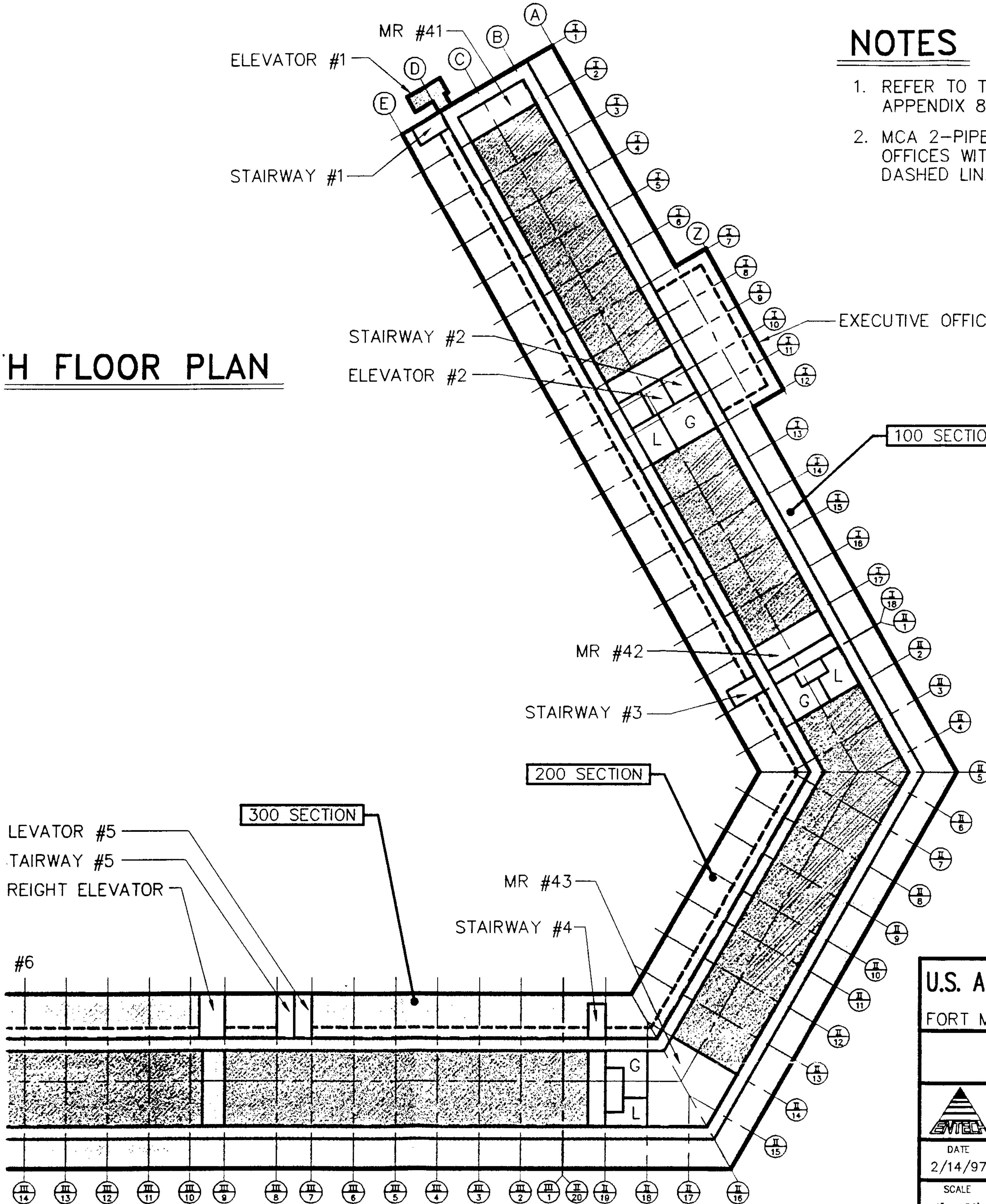



1

## NOTES

1. REFER TO THE
APPENDIX 8.10
2. MCA 2–PIPE F/
OFFICES WITH T
DASHED LINE, (

# 'H FLOOR PLAN



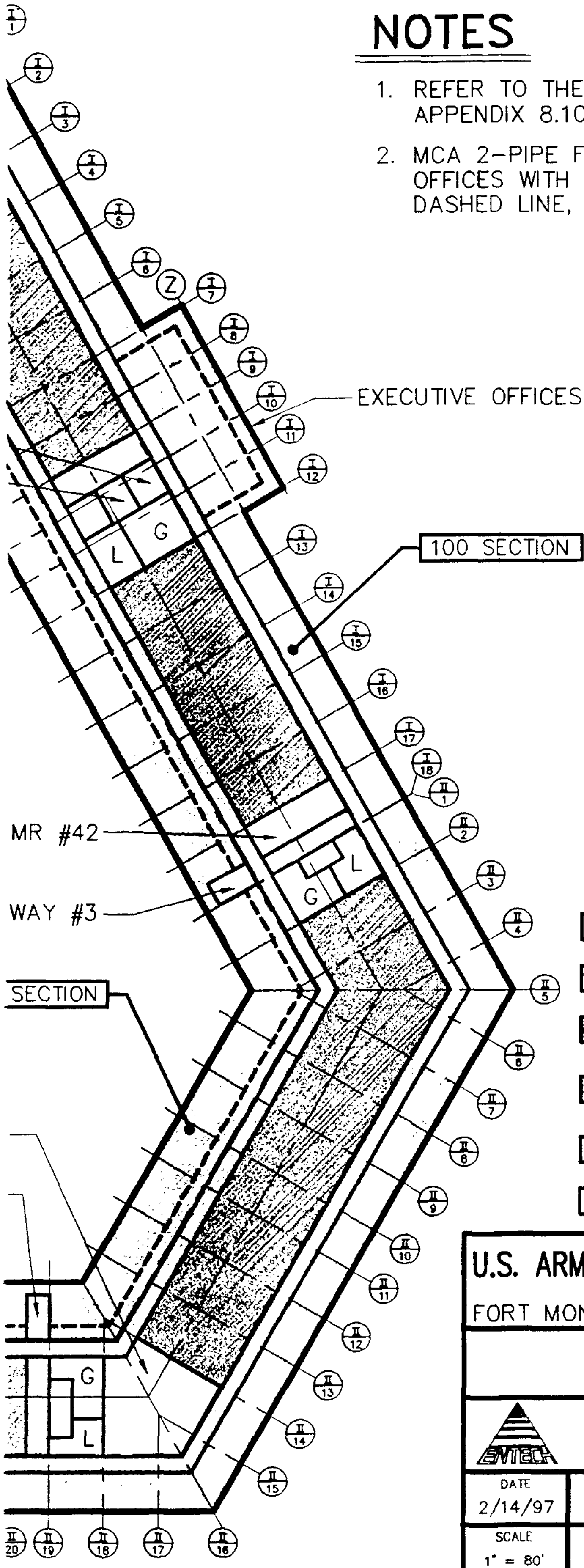

| U.S. ARMY |
|---|
| FORT MON |
| DATE 2/14/97 |
| SCALE 1" = 80' |

ENTECH

②

# NOTES

1. REFER TO THE FLOOR BY FLOOR LAYOUT DRAWINGS IN APPENDIX 8.10 FOR LOCATION OF ROOM NUMBERS.
2. MCA 2-PIPE FAN COILS CONDITION ALL PERIMETER OFFICES WITH THE EXCEPTION OF A STRIP NOTED BY A DASHED LINE, OUT TO THE CORRIDOR AREAS.




- MCA 2-PIPE (HEATING/COOLING)
- STEAM HEAT ONLY
- STEAM HEAT/REHEAT W/ MISC. COOLING
- COOLING ONLY (DX & MISC. CHILLERS)
- MCA HEATING ONLY (CONVECTORS, FINNED TUBE, ETC.)
- UNHEATED SPACE

U.S. ARMY ENGINEER DISTRICT, MOBILE/NORFOLK

FORT MONMOUTH NEW JERSEY

**BUILDING 2700 HVAC SYSTEMS**
**FOURTH FLOOR PLAN**

ENTECH Engineering Inc.
4 SOUTH FOURTH STREET P.O. BOX 32 READING, PA 19603 (610) 373-6667
1851 WEST END AVE P.O. BOX 389 POTTSVILLE, PA 17901 (717) 628-5655

| DATE | DRAWN BY | CHECKED BY | PROJ. MGR. | APPROVED | |
|---|---|---|---|---|---|
| 2/14/97 | RJI | JED | ELC | | |
| SCALE | PROJECT NO. | | DRAWING NO. | | REVISION |
| 1" = 80' | 4130.05 | | FIG. 5.4.2.6 | | 0 |

### 5.4.3 Input - Building 2700 Zones and Systems

Area Covered: Approximately 650,000 sq ft of the nominal 700,000 sq ft building was identified into one category or another, of the 650,000 sq ft accounted for, 70,000 sq ft is considered unconditioned and it primarily consists of areas like the boiler plant, mechanical or machine rooms (MR), most rest rooms and substations, etc..

City of Reference: Weather information contained in EZDOE for the city of Newark, New Jersey is used as the model baseline for Fort Monmouth, New Jersey.

Construction: Refer to the Heat Loss Model for typical U-values and factors assigned to walls, roofs, windows, etc. in the EZDOE models.

Zone Design Conditions: Most areas will utilize the following criteria.

| | | |
|---|---|---|
| Winter Room | - | 72° DB (heating) |
| Summer Room | - | 75° DB (cooling) |

Exceptions include the following:

| | | |
|---|---|---|
| MCA HW Heating only | - | 70°DB (heating) |
| Cleanrooms | - | 68°DB (heating and cooling) |

System and Plant Conditions: Most zones are supported by equipment that have system/plant settings such as:

— Coil Leaving Air Temp (min): 60° DB (for MCA system)
— Coil Leaving Air Temp (min): 55° DB (for DX/Misc.)
— Air-Side Economizer for MCA Air Handlers only
— 1 (lb/hr) Steam equals 1 (mmBtu) of Hot Water

Exceptions include the following:

— Cleanroom Coil (min) - 49.5° DB to achieve 55% RH (max)
— Cleanroom Reheat (max) - 68°DB

Zone Settings and Parameters: This information is used to establish load criteria for internal heat gains and losses for the EZDOE modeling. Refer to Tables 5.4.3.1 and 5.4.3.2 for the settings by model and by floor respectively. Table 5.4.3.3 describes the EZDOE schedules used.

Occupancy: Approximately 1,400 people are assigned to work at Building 2700 during a normal work day. On average, 30 visitors are expected to be inside the building during a week day. A value of 294 $ft^2$/person used in the table is based on 60% of the 700,000 nominal square foot building being occupied by an average density at any given time. The final numbers for area modeled suggests that % of area populated is higher which would raise the area per person value.

With the value left alone the concentration numbers go up with the 294 ft/person estimate. On the other hand, the use of 200 Btu/hr (sensible) and 250 Btu/hr (latent) per person is probably low for a building of this size and work nature. The final Btu's related to occupancy should fall in line with what is expected. Therefore the rates were left as they were originally set up.

Note: Specific occupancies are not predicted in this modeling for such areas as the cafeteria or auditorium. The average occupancy will be used throughout these block load analyses under the same schedule conditions.

Lighting: Lighting loads are generally defined as 1 watt/ft$^2$ for low level and as high as 5 watts/ft$^2$ for cleanrooms and electronic labs. Refer to the lighting schedule for daily expectations.

Equipment: Connected loads for miscellaneous equipment range from 1 watt/ft$^2$ for offices and storage to 15 watt/ft$^2$ for cleanrooms. Again, refer to the schedule for daily operating expectations. We have assigned a maximum constant rate of consumption of 50% of the connected load during the normal work hours.

Ventilation Rates: Areas supplied with outdoor air are set to 15% (min) with the exception of the cafeteria and the cleanrooms which are set at 20%. Outdoor air increases with use of economizers in the colder months for the MCA units.

Note: Many areas in the building do not receive outdoor air or infiltration air. Some of these are cooling only areas for computer rooms, etc.. Again as mentioned in Section 3, these conditions do not meet the requirements set down in ASHRAE 62-1989 establishing minimum air for healthy environments.

Infiltration: The infiltration rates were set for 0.8 air changes per hour (ACH) year round for zones not assigned with a ventilation rate of 0-20%.

The baseline average infiltration rates were assigned in EZDOE to 0.8 ACH year round since the building is continuously exhausted. The 0.8 ACH rate, suggests an ASHRAE definition for a loose to medium type construction for this building during winter conditions. Summer conditions at this rate are considered high but for this building the exhaust differential governs year round.

Because the building is substantially negative (exhaust > than outdoor air + infiltration) the estimated total exhaust expected to leave the building is 50% or 90,000 cfm of the connected/running exhaust fan total of 180,000 cfm.

Many of the exhaust fans on the roof are designed with relatively low static pressure of 1"± water gauge. The negative conditions existing in the building would suggest that the added static pressure would reduce the capacities of these fans and in some cases the fans probably exhaust very little air. Adding 0.5 inches water gauge of static pressure to many of the smaller fans would reduce their capacity significantly with some moving a minimal amount of exhaust air. Total exhaust equates to the ventilation rate plus the infiltration rate. The estimated connected outdoor air quantity is about 65,000 cfm. Modeling factors in EZDOE

project infiltration totals to be about 25,000 cfm to bring the total exhaust to about 90,000 cfm.

Schedules: Generally the schedules are similar between the heating and cooling system. Refer to Table 5.4.3.3 for a synopsis of the schedules used in the EZDOE modeling. To recall, the MCA-HW system is only available from October 15 to May 15 and vice-versa for MCA-CHW. Otherwise steam heating and the DX-Misc. cooling devices are available year round.

# FT. MONMOUTH, DEPARTMENT OF THE ARMY
## BUILDING #2700 - EZDOE INPUT SUMMARY
### TABLE 5.4.3.1 - SORTED BY MODEL

| Item # | DRAWING DESCRIPTION: | Color (s) | EZDOE Model FTMO+ | Floor | ZONE | Serving System #1 | Serving System #2 | Serving System #3 | Wall Hgt. (Ft.) | Area (Ft.²) | Volume (Ft.³) | Occupancy (Ft.²/Person) | Lighting (W/Ft.²) | Equipment (W/Ft.²) | Outside Air (% cfm) | Infiltration (ACH/Hr.) | Floor | Item # |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | MCA 2-Pipe | Lt. Tan | AC0 | B | Interior Perimeter | MCA-AHU | | | 14 | 18,905 | 151,240 | 294 | 3.1 | 1.3 | 15 | 0 | B | 1 |
| 2 | MCA 2-Pipe | Lt. Tan | AC0 | 1 | Exterior Perimeter | MCA-AHU | | | 22 3 | 38,634 | 647,120 | 294 | 3.1 | 1 3 | 15 | 0 | 1 | 2 |
| 3 | MCA 2-Pipe | Lt. Tan | AC0 | 1 | Interior Perimeter | MCA-AHU | | | 22.3 | 7,696 | 128,908 | 294 | 3 1 | 1 3 | 15 | 0 | 1 | 3 |
| 4 | MCA 2-Pipe | Lt. Tan | AC0 | 2 | Exterior Perimeter | MCA-Fan Coil | | | 15 3 | 25,789 | 251,443 | 294 | 3 1 | 1.3 | | 0.8 | 2 | 4 |
| 5 | MCA 2-Pipe | Lt. Tan | AC0 | 2 | Interior Perimeter | MCA-Fan Coil | | | 15 3 | 20,421 | 199,105 | 294 | 3.1 | 1 3 | | 0 8 | 2 | 5 |
| 6 | MCA 2-Pipe | Lt. Tan | AC0 | 2 | Middle | MCA-AHU | | | 15 3 | 40,144 | 391,404 | 294 | 3.1 | 1 8 | 15 | | 2 | 6 |
| 7 | MCA 2-Pipe | Lt. Tan | AC0 | 3 | Exterior Perimeter | MCA-Fan Coil | | | 15 3 | 25,789 | 251,443 | 294 | 3 1 | 1 3 | | 0 8 | 3 | 7 |
| 8 | MCA 2-Pipe | Lt. Tan | AC0 | 3 | Interior Perimeter | MCA-Fan Coil | | | 15 3 | 20,421 | 199,105 | 294 | 3.1 | 1 3 | | 0 8 | 3 | 8 |
| 9 | MCA 2-Pipe | Lt. Tan | AC0 | 3 | Middle | MCA-AHU | | | 15 3 | 49,416 | 481,806 | 294 | 3 1 | 1.8 | 15 | | 3 | 9 |
| 10 | MCA 2-Pipe | Lt. Tan | AC0 | 4 | Exterior Perimeter | MCA-Fan Coil | | | 15 3 | 25,789 | 251,443 | 294 | 3.1 | 1.3 | | 0 8 | 4 | 10 |
| 11 | MCA 2-Pipe | Lt. Tan | AC0 | 4 | Interior Perimeter | MCA-Fan Coil | | | 15 3 | 20,421 | 199,105 | 294 | 3.1 | 1 3 | | 0 8 | 4 | 11 |
| 12 | MCA 2-Pipe | Lt. Tan | AC0 | 4 | Middle | MCA-AHU | | | 15 3 | 36,103 | 352,004 | 294 | 3 1 | 1 8 | 15 | | 4 | 12 |
| 13 | *MCA 2-Pipe Summary* | *Lt. Tan* | *AC0* | *All* | *All Model AC0 Zones* | *All Model AC0 Sys.* | | | | *329,528* | *3,504,126* | | | | | | *All* | 13 |
| 14 | Steam Heat Only | Magenta | BB0 | B | Corridors & Miscl. Rooms | Steam-Unit Heater | | | 14 | 23,230 | 185,840 | 294 | 1 | 0 | 0 | 0 8 | B | 14 |
| 15 | Steam Heat/RH w/ DX & Miscl Cooling | Dk. Tan | BB0 | B | Cafeteria, Computer/Lab Rooms | Steam-AHU | DX Cooling | MCA-HW Only | 14 | 20,043 | 160,344 | 294 | 2 | 2 | 20 | | B | 15 |
| 16 | Steam Heat Only | Magenta | BB0 | 1 | Miscl Rooms | Steam-Unit Heater | | | 22.3 | 17,842 | 298,854 | 294 | 1 | 0 | 0 | | 1 | 16 |
| 17 | Steam Heat/RH w/ DX & Miscl Cooling | Dk. Tan | BB0 | 1 | Offices, Computer/Labs | Steam-AHU | DX Cooling | | 22.3 | 15,561 | 550,167 | 294 | 2 | 1 | 15 | | 1 | 17 |
| 18 | Steam Heat/RH w/ DX & Miscl. Cooling | Dk. Tan | BB0 | 2 | Middle | Steam-AHU | DX Cooling | | Int.Space | 17,634 | 171,932 | 294 | 4 | 15 | 15 | | 2 | 18 |
| 19 | Steam Heat/RH w/ DX & Miscl. Cooling | Dk. Tan | BB0 | 3 | Middle | Steam-AHU | DX Cooling | | Int Space | 11,911 | 115,179 | 294 | 5 | 10 | 15 | | 3 | 19 |
| 20 | Steam Heat/RH w/ DX & Miscl Cooling | Dk. Tan | BB0 | 4 | Middle - Clean Room | Steam-AHU | DX Cooling | | Int.Space | 6,968 | 67,361 | 294 | 5 | 15 | 20 | | 4 | 20 |
| 21 | Steam Heat/RH w/ DX & Miscl. Cooling | Dk. Tan | BB0 | 4 | Middle - Office/Labs | Steam-AHU | DX Cooling | | Int.Space | 5,117 | 49,481 | 294 | 5 | 5 | 15 | | 4 | 21 |
| 22 | *Steam Heat/RH w/ DX Cooling Summary* | *Dk. Tan* | *BB0* | *ALL* | *All Model BB0 Zones* | *Steam-AHU* | *DX Cooling* | | | *118,304* | *1,599,158* | | | | | | *ALL* | 22 |
| 23 | Cooling (DX & miscl. Chillers) w/MCA Heat | Green & Blue | CA3 | B | Exterior Perimeter | DX-AHU | MCA Ht-Fin Tube/Convector | | 14 | 1,872 | 18,720 | 294 | 4 | 5 | 0 | | B | 23 |
| 24 | Cooling (DX & miscl Chillers) | Green | CA3 | B | Interior Perimeter | DX-AHU | | | 14 | 2,847 | 28,470 | 294 | 4 | 5 | 0 | | B | 24 |
| 25 | Cooling (DX & miscl Chillers) w/MCA Heat | Green & Blue | CA3 | 1 | Miscl. Exterior & Interior Perimeter | DX-AHU | MCA Ht-Fin Tube/Convector | | 22 3 | 16,950 | 283,065 | 294 | 4 | 10 | 0 | | 1 | 25 |
| 26 | Cooling (DX & miscl Chillers) | Green | CA3 | 1 | Miscl Exterior & Interior Perimeter | DX-AHU | | | 22.3 | 9,601 | 160,337 | 294 | 4 | 10 | 0 | | 1 | 26 |
| 27 | MCA Heat Only | Blue | CA3 | 1 | Miscl. Exterior & Interior Perimeter | | MCA Ht-Fin Tube/Convector | | 22.3 | 25,161 | 421,464 | 294 | 2 | 0.7 | | 0 8 | 1 | 27 |
| 28 | Cooling (DX & miscl. Chillers) | Green | CA3 | 2 | Middle | DX-AHU | | | Int.Space | 21,192 | 204,927 | 294 | 4 | 10 | 0 | | 2 | 28 |
| 29 | Cooling (DX & miscl. Chillers) | Green | CA3 | 3 | Middle | DX-AHU | | | Int.Space | 14,457 | 139,800 | 294 | 4 | 10 | 0 | | 3 | 29 |
| 30 | Cooling (DX & miscl. Chillers) | Green | CA3 | 4 | Middle | DX-AHU | | | Int Space | 35,153 | 339,930 | 294 | 5 | 10 | 0 | | 4 | 30 |
| 31 | MCA Heat Only | Blue | CA3 | B-3 | Elevator Tower Spaces at Ends | | MCA Ht-Fin Tube/Convector | | 15.3 | 1,000 | 16,756 | 294 | 2 | 0 7 | | 0 8 | B-3 | 31 |
| 32 | MCA Heat Only | Blue | CA3 | 4 | Elevator Tower Spaces at Ends | | MCA Ht-Fin Tube/Convector | | 15 3 | 250 | 2,438 | 294 | 2 | 0 7 | | 0 8 | 4 | 32 |
| 33 | *DX Cooling w/some MCA Heat Summary* | *Green & Blue* | *CA3* | *All* | *All Model CA3 Zones* | | | | | *128,483* | *1,615,907* | | | | | | *All* | 33 |
| | | | | | | | | *TYPICAL:* | | | | 294 | | | | 0 8 | --- | --- |
| | | | | | | | | *TOTALS:* | | 578,315.0 | 6,719,191.1 | | | | | | | |
| Item # | DRAWING DESCRIPTION: | Color (s) | EZDOE Model FTMO+ | Floor | ZONE | Serving System #1 | Serving System #2 | Serving System #3 | Wall Hgt. (Ft.) | Area (Ft.²) | Volume (Ft.³) | Occupancy (Ft.²/Person) | Lighting (W/Ft.²) | Equipment (W/Ft.²) | (% cfm) Outside Air | Infiltration (ACH/Hr.) | Floor | Item # |

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FT. MONMOUTH, DEPARTMENT OF THE ARMY

# BUILDING #2700 - EZDOE INPUT SUMMARY

TABLE 5.4.3.2 - SORTED BY FLOOR

| Item # | DRAWING DESCRIPTION: | Color (s) | EZDOE Model FTMO+ | Floor | ZONE | Serving System #1 | Serving System #2 | Serving System #3 | Wall Hgt. (Ft.) | Area (Ft.²) | Volume (Ft.³) | Occupancy (Ft.²/Person) | Lighting (W/Ft.²) | Equipment (W/Ft.²) | Outside Air (% cfm) | Infiltration (ACH/Hr.) | Floor | Item # |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | MCA 2-Pipe | Lt. Tan | AC0 | B | Interior Perimeter | MCA-AHU | | | 14 | 18,905 | 151,240 | 294 | 3.1 | 1.3 | 15 | 0 | B | 1 |
| 2 | Steam Heat Only | Magenta | BB0 | B | Corridors & Miscl. Rooms | Steam-Unit Heater | | | 14 | 23,230 | 185,840 | 294 | 1 | 0 | 0 | 0.8 | B | 2 |
| 3 | Steam Heat/RH w/ DX & Miscl. Cooling | Dk. Tan | BB0 | B | Cafeteria, Computer/Lab Rooms | Steam-AHU | DX Cooling | MCA-HW Only | 14 | 20,043 | 160,344 | 294 | 2 | 2 | 20 | | B | 3 |
| 4 | Cooling (DX & miscl. Chillers) w/MCA Heat | Green & Blue | CA3 | B | Exterior Perimeter | DX-AHU | MCA Ht-Fin Tube/Convector | | 14 | 1,872 | 18,720 | 294 | 4 | 5 | 0 | | B | 4 |
| 5 | Cooling (DX & miscl. Chillers) | Green | CA3 | B | Interior Perimeter | DX-AHU | | | 14 | 2,847 | 28,470 | 294 | 4 | 5 | 0 | | B | 5 |
| 6 | MCA Heat Only | Blue | CA3 | B-3 | Elevator Tower Spaces at Ends | | MCA Ht-Fin Tube/Convector | | 15.3 | 1,000 | 16,756 | 294 | 2 | 0.7 | | 0.8 | B-3 | 6 |
| 7 | *BASEMENT (B) FLOOR Summary* | | | *B* | *All Basement Zones* | *Bsmnt. Floor Systems* | | | | *67,897* | *561,370* | | | | | | *B* | 7 |
| 8 | MCA 2-Pipe | Lt. Tan | AC0 | 1 | Exterior Perimeter | MCA-AHU | | | 22.3 | 38,634 | 647,120 | 294 | 3.1 | 1.3 | 15 | 0 | 1 | 8 |
| 9 | MCA 2-Pipe | Lt. Tan | AC0 | 1 | Interior Perimeter | MCA-AHU | | | 22.3 | 7,696 | 128,908 | 294 | 3.1 | 1.3 | 15 | 0 | 1 | 9 |
| 10 | Steam Heat Only | Magenta | BB0 | 1 | Miscl. Rooms | Steam-Unit Heater | | | 22.3 | 17,842 | 298,854 | 294 | 1 | 0 | 0 | | 1 | 10 |
| 11 | Steam Heat/RH w/ DX & Miscl. Cooling | Dk. Tan | BB0 | 1 | Offices, Computer/Labs | Steam-AHU | DX Cooling | | 22.3 | 15,561 | 550,167 | 294 | 2 | 1 | 15 | | 1 | 11 |
| 12 | Cooling (DX & miscl. Chillers) w/MCA Heat | Green & Blue | CA3 | 1 | Miscl. Exterior & Interior Perimeter | DX-AHU | MCA Ht-Fin Tube/Convector | | 22.3 | 16,950 | 283,065 | 294 | 4 | 10 | 0 | | 1 | 12 |
| 13 | Cooling (DX & miscl. Chillers) | Green | CA3 | 1 | Miscl. Exterior & Interior Perimeter | DX-AHU | | | 22.3 | 9,601 | 160,337 | 294 | 4 | 10 | 0 | | 1 | 13 |
| 14 | MCA Heat Only | Blue | CA3 | 1 | Miscl. Exterior & Interior Perimeter | | MCA Ht-Fin Tube/Convector | | 22.3 | 25,161 | 421,464 | 294 | 2 | 0.7 | | 0.8 | 1 | 14 |
| 15 | *FIRST (1st) FLOOR Summary* | | | *1* | *All 1st Floor Zones* | *1st Floor Systems* | | | | *131,445* | *2,489,915* | | | | | | *1* | 15 |
| 16 | MCA 2-Pipe | Lt. Tan | AC0 | 2 | Exterior Perimeter | MCA-Fan Coil | | | 15.3 | 25,789 | 251,443 | 294 | 3.1 | 1.3 | | 0.8 | 2 | 16 |
| 17 | MCA 2-Pipe | Lt. Tan | AC0 | 2 | Interior Perimeter | MCA-Fan Coil | | | 15.3 | 20,421 | 199,105 | 294 | 3.1 | 1.3 | | 0.8 | 2 | 17 |
| 18 | MCA 2-Pipe | Lt. Tan | AC0 | 2 | Middle | MCA-AHU | | | 15.3 | 40,144 | 391,404 | 294 | 3.1 | 1.8 | 15 | | 2 | 18 |
| 19 | Steam Heat/RH w/ DX & Miscl. Cooling | Dk. Tan | BB0 | 2 | Middle | Steam-AHU | DX Cooling | | Int.Space | 17,634 | 171,932 | 294 | 4 | 15 | 15 | | 2 | 19 |
| 20 | Cooling (DX & miscl. Chillers) | Green | CA3 | 2 | Middle | DX-AHU | | | Int.Space | 21,192 | 204,927 | 294 | 4 | 10 | 0 | | 2 | 20 |
| 21 | *SECOND (2nd) FLOOR Summary* | | | *2* | *All 2nd Floor Zones* | *2nd Floor Systems* | | | | *125,180* | *1,218,811* | | | | | | *2* | 21 |
| 22 | MCA 2-Pipe | Lt. Tan | AC0 | 3 | Exterior Perimeter | MCA-Fan Coil | | | 15.3 | 25,789 | 251,443 | 294 | 3.1 | 1.3 | | 0.8 | 3 | 22 |
| 23 | MCA 2-Pipe | Lt. Tan | AC0 | 3 | Interior Perimeter | MCA-Fan Coil | | | 15.3 | 20,421 | 199,105 | 294 | 3.1 | 1.3 | | 0.8 | 3 | 23 |
| 24 | MCA 2-Pipe | Lt. Tan | AC0 | 3 | Middle | MCA-AHU | | | 15.3 | 49,416 | 481,806 | 294 | 3.1 | 1.8 | 15 | | 3 | 24 |
| 25 | Steam Heat/RH w/ DX & Miscl. Cooling | Dk. Tan | BB0 | 3 | Middle | Steam-AHU | DX Cooling | | Int.Space | 11,911 | 115,179 | 294 | 5 | 10 | 15 | | 3 | 25 |
| 26 | Cooling (DX & miscl. Chillers) | Green | CA3 | 3 | Middle | DX-AHU | | | Int.Space | 14,457 | 139,800 | 294 | 4 | 10 | 0 | | 3 | 26 |
| 27 | *THIRD (3rd) FLOOR Summary* | | | *3* | *All 3rd Floor Zones* | *3rd Floor Systems* | | | | *121,994* | *1,187,333* | | | | | | *3* | 27 |
| 28 | MCA 2-Pipe | Lt. Tan | AC0 | 4 | Exterior Perimeter | MCA-Fan Coil | | | 15.3 | 25,789 | 251,443 | 294 | 3.1 | 1.3 | | 0.8 | 4 | 28 |
| 29 | MCA 2-Pipe | Lt. Tan | AC0 | 4 | Interior Perimeter | MCA-Fan Coil | | | 15.3 | 20,421 | 199,105 | 294 | 3.1 | 1.3 | | 0.8 | 4 | 29 |
| 30 | MCA 2-Pipe | Lt. Tan | AC0 | 4 | Middle | MCA-AHU | | | 15.3 | 36,103 | 352,004 | 294 | 3.1 | 1.8 | 15 | | 4 | 30 |
| 31 | Steam Heat/RH w/ DX & Miscl. Cooling | Dk. Tan | BB0 | 4 | Middle - Clean Room | Steam-AHU | DX Cooling | | Int.Space | 6,968 | 67,361 | 294 | 5 | 15 | 20 | | 4 | 31 |
| 32 | Steam Heat/RH w/ DX & Miscl. Cooling | Dk. Tan | BB0 | 4 | Middle - Office/Labs | Steam-AHU | DX Cooling | | Int Space | 5,117 | 49,481 | 294 | 5 | 5 | 15 | | 4 | 32 |
| 33 | Cooling (DX & miscl. Chillers) | Green | CA3 | 4 | Middle | DX-AHU | | | Int Space | 35,153 | 339,930 | 294 | 5 | 10 | 0 | | 4 | 33 |
| 34 | MCA Heat Only | Blue | CA3 | 4 | Elevator Tower Spaces at Ends | | MCA Ht-Fin Tube/Convector | | 15.3 | 250 | 2,438 | 294 | 2 | 0.7 | | 0.8 | 4 | 34 |
| 35 | *FOURTH (4th) FLOOR Summary* | | | *4* | *All 4th Floor Zones* | *4th Floor Systems* | | | | *129,799* | *1,261,762* | | | | | | *4* | 35 |
| | | | | | | | | *TYPICAL:* | | | | 294 | | | | 0.8 | | |
| | | | | | | | | *TOTALS:* | | 576,315.0 | 6,719,191.1 | | | | | | | |
| Item # | DRAWING DESCRIPTION: | Color (s) | EZDOE Model FTMO+ | Floor | ZONE | Serving System #1 | Serving System #2 | Serving System #3 | Wall Hgt. (Ft.) | Area (Ft.²) | Volume (Ft.³) | Occupancy (Ft.²/Person) | Lighting (W/Ft.²) | Equipment (W/Ft.²) | (% cfm) Outside Air | Infiltration (ACH/Hr.) | Floor | Item # |

## FT. MONMOUTH, DEPARTMENT OF THE ARMY

### BUILDING #2700 - EZDOE SCHEDULES

### TABLE 5.4.3.3

| | WINTER | | | SUMMER | | |
|---|---|---|---|---|---|---|
| Dates: | Jan 01 thru May 15<br>Oct 16 thru Dec 31 | | | May 16 thru Oct 15 | | |
| Schedule: | Wk.-Day/End | Times: | Percent: | Wk. Day/End | Times: | Percent: |
| *Occupancy* | -Day | 12a - 6a | 7 | Day | 1a - 6a | 7 |
| | | 7a | 70 | | 7a | 70 |
| | | 8a | 90 | | 8a | 90 |
| | | 9a - 2p | 100 | | 9a - 2p | 100 |
| | | 3p | 90 | | 3p | 90 |
| | | 4p | 70 | | 4p | 70 |
| | | 5p | 25 | | 5p | 25 |
| | | 6p | 15 | | 6p | 15 |
| | | 7p - 11p | 7 | | 7p - 12a | 7 |
| | -End | 12a - 11p | 7 | | 12a - 11p | 7 |
| *Lighting* | -Day | 12a - 6a | 10 | -Day | 12a - 6a | 10 |
| | | 7a | 50 | | 7a | 50 |
| | | 8a | 90 | | 8a | 90 |
| | | 9a - 2 p | 100 | | 9a - 2p | 100 |
| | | 3p | 90 | | 3p | 90 |
| | | 4p | 70 | | 4p | 70 |
| | | 5p | 25 | | 5p | 25 |
| | | 6p | 15 | | 6p | 15 |
| | | 7p - 11p | 10 | | 7p - 11p | 10 |
| | -End | 12a - 11p | 10 | -End | 12a - 11p | 10 |
| *Infiltration* | -Day & End | 12a - 11p | 80 (of 1 achg/hr) | -Day & End | 12a-11p | 80 (of 1 achg/hr) |
| *Heating Available* | | | | | | |
| *- MCA Heating System* | -Day & End | 12a - 11p | ON | -Day & End | 12a - 11p | OFF |
| *- Steam Heating (all types)* | -Day & End | 12a - 11p | ON | -Day & End | 12a - 11p | ON |
| *Cooling Available* | | | | | | |
| *- MCA Cooling System* | -Day & End | 12a - 11p | OFF | -Day & End | 12a - 11p | ON |
| *- All Other Cooling Systems* | -Day & End | 12a - 11p | ON | -Day & End | 12a - 11p | ON |
| *Rm. Temp. Setting* | -Day & End | 12a - 11p | 72 | -Day & End | 12a - 11p | 75 |
| *- Except Some Htg. only Areas* | -Day & End | 12a - 11p | (70) | | | |
| *- 4TH Flr Clean Room (Steam/ReHt. w/DX)* | -Day & End | 12a - 11p | (68) | -Day & End | 12a - 11p | (68) |
| *Equipment* | -Day | 12a - 6a | 15 | -Day | 12a - 6a | 15 |
| | | 7a-6p | 50 | | 7a-6p | 50 |
| | | 7p-11p | 15 | | 7p-11p | 15 |
| | -End | 12a-11p | 15 | -End | 12a-11p | 15 |

### 5.4.4 Results - Building 2700 Zones and Systems

The results from the EZDOE modeling are intended to support/disprove information presented previously for the equipment connected loads in Section 3, the building and the steam use and heat loss models in Section 5. A summary of the EZDOE cooling and heating loads follow in Table 5.4.4.1. Refer to Appendix 8.11 for a copy of the results for the three models.

**Table 5.4.4.1, Building 2700 - EZDOE Heating and Cooling Results-Base Case**

| Plant/System | EZDOE Heating | | EZDOE Cooling | | |
|---|---|---|---|---|---|
| | Peak (mmBtu/hr) | Total (mmBtu/yr) | Peak (mmBtu/hr) | Peak (tons) | Total (mmBtu/yr) |
| MCA 2-Pipe Heating & Cooling | 4.7 | 3,460 | 7.7 | 640 | 7,690 |
| MCA HW Heating only | 1.0 | 1,940 | --- | --- | --- |
| Steam w/ DX & Misc Cooling | 3.1 | 8,930 | 4.4 | 370 | 14,210 |
| DX & Misc Cooling | --- | --- | 3.8 | 320 | 14,860 |
| Totals | 8.8 | 14,330 | 15.9 | 1,330 | 36,760 |

# FT. MONMOUTH, DEPARTMENT OF THE ARMY

## BUILDING #2700 - EZDOE OUTPUT SUMMARY

## TABLE 5.4.4.2 - SORTED BY MODEL

| Item # | DRAWING DESCRIPTION: | Color (s) | EZDOE Model FTMO+ | Floor | ZONE | Serving System #1 | Serving System #2 | Serving System #3 | OUTSIDE AIR (% cfm) | OUTSIDE AIR (cfm) | Zone Supply Flow (cfm) | HEATING Sys. Ld Ann. Tot. (MMBtu) | Zone Max. SS-A Monthly Demand (MBtuh) | BASEBOARD Zone SS-B Tot. (MMBtu) | Max. Rate (MBtuh) | COOLING SS-A Sys. Ld Ann. (MMBtu) | Zone Max. SS-A Monthly Demand (MBtuh) | Floor | EZDOE Model FTMO+ | Item # |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | MCA 2-Pipe | Lt. Tan | AC0 | B | Interior Perimeter | MCA-AHU | | | 15 | 2,688 | 17,920 | 97 | 208 | | | 621 | 524 | B | AC0 | 1 |
| 2 | MCA 2-Pipe | Lt. Tan | AC0 | 1 | Exterior Perimeter | MCA-AHU | | | 15 | 3,888 | 25,920 | 114 | 299 | | | 1,001 | 912 | 1 | AC0 | 2 |
| 3 | MCA 2-Pipe | Lt. Tan | AC0 | 1 | Interior Perimeter | MCA-AHU | | | 15 | 714 | 4,760 | – | – | | | – | – | 1 | AC0 | 3 |
| 4 | MCA 2-Pipe | Lt. Tan | AC0 | 2 | Exterior Perimeter | MCA-Fan Coil | | | | | 27,710 | 763 | 1,173 | | | 1,065 | 1,289 | 2 | AC0 | 4 |
| 5 | MCA 2-Pipe | Lt. Tan | AC0 | 2 | Interior Perimeter | MCA-Fan Coil | | | | | 21,760 | – | – | | | | – | 2 | AC0 | 5 |
| 6 | MCA 2-Pipe | Lt. Tan | AC0 | 2 | Middle | MCA-AHU | | | 15 | 3,660 | 24,400 | 15 | 131 | | | 858 | 744 | 2 | AC0 | 6 |
| 7 | MCA 2-Pipe | Lt. Tan | AC0 | 3 | Exterior Perimeter | MCA-Fan Coil | | | | | 27,710 | 763 | 1,173 | | | 1,065 | 1,289 | 3 | AC0 | 7 |
| 8 | MCA 2-Pipe | Lt. Tan | AC0 | 3 | Interior Perimeter | MCA-Fan Coil | | | | | 21,760 | – | – | | | | – | 3 | AC0 | 8 |
| 9 | MCA 2-Pipe | Lt. Tan | AC0 | 3 | Middle | MCA-AHU | | | 15 | 4,478 | 29,850 | 18 | 151 | | | 1,051 | 910 | 3 | AC0 | 9 |
| 10 | MCA 2-Pipe | Lt. Tan | AC0 | 4 | Exterior Perimeter | MCA-Fan Coil | | | | | 32,540 | 1,366 | 1,440 | | | 1,111 | 1,180 | 4 | AC0 | 10 |
| 11 | MCA 2-Pipe | Lt. Tan | AC0 | 4 | Interior Perimeter | MCA-Fan Coil | | | | | 25,520 | | – | | | | – | 4 | AC0 | 11 |
| 12 | MCA 2-Pipe | Lt. Tan | AC0 | 4 | Middle | MCA-AHU | | | 15 | 4,511 | 30,070 | 321 | 425 | | | 878 | 871 | 4 | AC0 | 12 |
| 13 | *MCA 2-Pipe Summary* | *Lt. Tan* | *AC0* | *All* | *All Model AC0 Zones* | *Model AC0 Sys.* | | | | *19,938* | *289,920* | *3,454* | *5,000* | | | *7,690* | *7,719* | *All* | *AC0* | 13 |
| 14 | Steam Heat Only | Magenta | BB0 | B | Corridors & Miscl. Rooms | Steam-Unit Heater | | | 0 | | 13,960 | 559 | 446 | | | 0 | 0 | B | BB0 | 14 |
| 15 | Steam Heat/RH w/ DX & Miscl. Cooling | Dk. Tan | BB0 | B | Cafeteria, Computer/Lab Rooms | Steam-AHU | DX Cooling | MCA-HW | 20 | 4,716 | 23,580 | 2,100 | 957 | 1,100 | 241 | 521 | 731 | B | BB0 | 15 |
| 16 | Steam Heat Only | Magenta | BB0 | 1 | Miscl. Rooms | Steam-Unit Heater | | | 0 | | 13,610 | 710 | 703 | | | 0 | 0 | 1 | BB0 | 16 |
| 17 | Steam Heat/RH w/ DX & Miscl. Cooling | Dk. Tan | BB0 | 1 | Offices, Computer/Labs | Steam-AHU | DX Cooling | | 15 | 1,536 | 10,240 | 310 | 236 | | | 387 | 294 | 1 | BB0 | 17 |
| 18 | Steam Heat/RH w/ DX & Miscl. Cooling | Dk. Tan | BB0 | 2 | Middle | Steam-AHU | DX Cooling | | 15 | 4,413 | 29,420 | 1 | 65 | | | 2,879 | 919 | 2 | BB0 | 18 |
| 19 | Steam Heat/RH w/ DX & Miscl. Cooling | Dk. Tan | BB0 | 3 | Middle | Steam-AHU | DX Cooling | | 15 | 2,576 | 17,170 | 2 | 50 | | | 1,566 | 524 | 3 | BB0 | 19 |
| 20 | Steam Heat/RH w/ DX & Miscl. Cooling | Dk. Tan | BB0 | 4 | Middle - Clean Room | Steam-AHU | DX Cooling | | 20 | 10,000 | 50,000 | 6,320 | 903 | | | 6,418 | 1,706 | 4 | BB0 | 20 |
| 21 | Steam Heat/RH w/ DX & Miscl. Cooling | Dk. Tan | BB0 | 4 | Middle - Office/Labs | Steam-AHU | DX Cooling | | 15 | 996 | 6,640 | 26 | 64 | | | 423 | 196 | 4 | BB0 | 21 |
| 22 | *Steam Heat/RH w/ DX Cooling Summary* | *Dk. Tan* | *BB0* | *ALL* | *All Model BB0 Zones* | *Model BB0 Sys.* | *DX Cooling* | | | *24,237* | *184,620* | *10,028* | *3,424* | *1,100* | *241* | *14,214* | *4,372* | *ALL* | *BB0* | 22 |
| 23 | Cooling (DX & miscl. Chillers) w/MCA Heat | Green & Blue | CA3 | B | Exterior Perimeter | DX-AHU | MCA Ht-Fin Tube/Conv. | | 0 | | 1,890 | 0 | | 0 | 36 | 127 | 44 | B | CA3 | 23 |
| 24 | Cooling (DX & miscl. Chillers) | Green | CA3 | B | Interior Perimeter | DX-AHU | | | 0 | | 2,820 | 0 | | 0 | 0 | 234 | 68 | B | CA3 | 24 |
| 25 | Cooling (DX & miscl. Chillers) w/MCA Heat | Green & Blue | CA3 | 1 | Miscl. Exterior & Interior Perimeter | DX-AHU | MCA Ht-Fin Tube/Conv. | | 0 | | 25,900 | 0 | | 0 | 467 | 2,527 | 613 | 1 | CA3 | 25 |
| 26 | Cooling (DX & miscl. Chillers) | Green | CA3 | 1 | Miscl. Exterior & Interior Perimeter | DX-AHU | | | 0 | | 13,190 | 0 | | 0 | 0 | 1,433 | 314 | 1 | CA3 | 26 |
| 27 | MCA Heat Only | Blue | CA3 | 1 | Miscl. Exterior & Interior Perimeter | | MCA Ht-Fin Tube/Conv. | | | | 1 | 0 | 515 | 745 | 515 | 0 | | 1 | CA3 | 27 |
| 28 | Cooling (DX & miscl. Chillers) | Green | CA3 | 2 | Middle | DX-AHU | | | 0 | | 27,660 | 0 | | | | 3,276 | 664 | 2 | CA3 | 28 |
| 29 | Cooling (DX & miscl. Chillers) | Green | CA3 | 3 | Middle | DX-AHU | | | 0 | | 18,870 | 0 | | | | 2,235 | 453 | 3 | CA3 | 29 |
| 30 | Cooling (DX & miscl. Chillers) | Green | CA3 | 4 | Middle | DX-AHU | | | 0 | | 69,080 | 0 | | | | 5,027 | 1,628 | 4 | CA3 | 30 |
| 31 | MCA Heat Only | Blue | CA3 | B-3 | Elevator Tower Spaces at Ends | | MCA Ht-Fin Tube/Conv. | | | | 0 | 0 | 70 | 93 | 300 | | | B-3 | CA3 | 31 |
| 32 | MCA Heat Only | Blue | CA3 | 4 | Elevator Tower Spaces at Ends | | MCA Ht-Fin Tube/Conv. | | | | 0 | 0 | – | | | | | 4 | CA3 | 32 |
| 33 | *DX Cooling w/some MCA Heat Summary* | *Green & Blue* | *CA3* | *All* | *All Model CA3 Zones* | *Model CA3 Sys.* | | | | *0* | *158,411* | *0* | *585* | *839* | *1,317* | *14,880* | *3,782* | *All* | *CA3* | 33 |
| | | | | | | | | *TYPICAL:* | | | | | | | | | | | | |
| | | | | | | | | *TOTALS:* | | 44,175 | 613,951 | 13,482 | 9,008 | 1,939 | 1,558 | 36,784 | 15,872 | | | |
| Item # | DRAWING DESCRIPTION: | Color (s) | EZDOE Model FTMO+ | Floor | ZONE | Serving System #1 | Serving System #2 | Serving System #3 | (% cfm) OUTSIDE AIR | (cfm) | Zone Supply Flow (cfm) | HEATING SS-A Sys. Ld Ann. Tot. (MMBtu) | Zone Max. SS-A Monthly Demand (MBtuh) | BASEBOARD Zone SS-B Tot. (MMBtu) | Max. Rate (MBtuh) | COOLING SS-A Sys. Ld Ann. (MMBtu) | Zone Max. SS-A Monthly Demand (MBtuh) | Floor | EZDOE Model FTMO+ | Item # |

| System | Peak mmBtu | Usage mmBtu |
|---|---|---|
| Hot Water Boiler Plant Loads | 4.7 | 5,394 |
| Steam Boiler Loads | 3.1 | 8,929 |
| Chilled Water Loads | 7.7 | 7,680 |
| DX Cooling Loads | 8.2 | 29,074 |

## FT. MONMOUTH, DEPARTMENT OF THE ARMY
### BUILDING #2700 - EZDOE OUTPUT SUMMARY
### TABLE 5.4.4.3 - SORTED BY FLOOR

| Item # | DRAWING DESCRIPTION: | Color (s) | EZDOE Model FTMO+ | Floor | ZONE | Serving System #1 | Serving System #2 | Serving System #3 | OUTSIDE AIR (% cfm) | OUTSIDE AIR (cfm) | Zone Supply Flow (cfm) | HEATING Sys. Ld Ann. Tot. (MMBtu) | Zone Max. SS-A Monthly Demand (MBtuh) | BASEBOARD Zone SS-B Tot. (MMBtu) | Max. Rate (MBtuh) | COOLING SS-A Sys. Ld Ann. (MMBtu) | Zone Max. SS-A Monthly Demand (MBtuh) | Floor | EZDOE Model FTMO+ | Item # |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | MCA 2-Pipe | Lt. Tan | ACO | B | Interior Perimeter | MCA-AHU | | | 15 | 2,688 | 17,920 | 97 | 209.0 | | | 621.0 | 524 | B | ACO | 1 |
| 2 | Steam Heat Only | Magenta | BBO | B | Corridors & Miscl. Rooms | Steam-Unit Heater | | | 0 | | 13,960 | 559.0 | 446.0 | | | 0.0 | 0 | B | BBO | 2 |
| 3 | Steam Heat/RH w/ DX & Miscl. Cooling | Dk. Tan | BBO | B | Cafeteria, Computer/Lab Rooms | Steam-AHU | DX Cooling | MCA-HW | 20 | 4,716 | 23,580 | 2,100.0 | 957.0 | 1100 | 241 | 521.0 | 731 | B | BBO | 3 |
| 4 | Cooling (DX & miscl. Chillers) w/MCA Heat | Green & Blue | CA3 | B | Exterior Perimeter | DX-AHU | MCA Ht-Fin Tube/Conv. | | 0 | | 1,890 | 0 | | 0 | 36 | 127.0 | 44 | B | CA3 | 4 |
| 5 | Cooling (DX & miscl. Chillers) | Green | CA3 | B | Interior Perimeter | DX-AHU | | | 0 | | 2,820 | 0 | | 0 | 0 | 234.0 | 66 | B | CA3 | 5 |
| 6 | MCA Heat Only | Blue | CA3 | B-3 | Elevator Tower Spaces at Ends | | MCA Ht-Fin Tube/Conv. | | | | 0 | 0 | 70 | 93 | 300 | | | B | CA3 | 6 |
| 7 | *BASEMENT (B) FLOOR Summary* | | | *B* | *All Basement Zones* | *Basement Sys.* | | | | *7,404* | *60,170* | *2,756* | *1,682* | *1,193* | *577* | *1,503* | *1,365* | *B* | | 7 |
| 8 | MCA 2-Pipe | Lt. Tan | ACO | 1 | Exterior Perimeter | MCA-AHU | | | 15 | 3,888 | 25,920 | 114.0 | 299.0 | | | 1,001.0 | 912 | 1 | ACO | 8 |
| 9 | MCA 2-Pipe | Lt. Tan | ACO | 1 | Interior Perimeter | MCA-AHU | | | 15 | 714 | 4,760 | – | – | | | – | – | 1 | ACO | 9 |
| 10 | Steam Heat Only | Magenta | BBO | 1 | Miscl. Rooms | Steam-Unit Heat | | | 0 | | 13,610 | 710.0 | 703.0 | | | 0.0 | 0 | 1 | BBO | 10 |
| 11 | Steam Heat/RH w/ DX & Miscl. Cooling | Dk. Tan | BBO | 1 | Offices, Computer/Labs | Steam-AHU | DX Cooling | | 15 | 1,536 | 10,240 | 310.0 | 236.0 | | | 387.0 | 294 | 1 | BBO | 11 |
| 12 | Cooling (DX & miscl. Chillers) w/MCA Heat | Green & Blue | CA3 | 1 | Miscl. Exterior & Interior Perimeter | DX-AHU | MCA Ht-Fin Tube/Conv. | | 0 | | 25,900 | 0 | | 0 | 467 | 2,527.0 | 613 | 1 | CA3 | 12 |
| 13 | Cooling (DX & miscl. Chillers) | Green | CA3 | 1 | Miscl. Exterior & Interior Perimeter | DX-AHU | | | 0 | | 13,190 | 0 | | 0 | 0 | 1,433.0 | 314 | 1 | CA3 | 13 |
| 14 | MCA Heat Only | Blue | CA3 | 1 | Miscl. Exterior & Interior Perimeter | | MCA Ht-Fin Tube/Conv. | | | | 1 | 0 | 515 | 745 | 515 | 0.0 | | 1 | CA3 | 14 |
| 15 | *FIRST (1st) FLOOR Summary* | | | *1* | *All 1st Floor Zones* | *1st Floor Sys.* | | | | *6,138* | *93,621* | *1,134* | *1,753* | *745* | *982* | *5,348* | *2,133* | *1* | | 15 |
| 16 | MCA 2-Pipe | Lt. Tan | ACO | 2 | Exterior Perimeter | MCA-Fan Coil | | | | | 27,710 | 763.0 | 1,173.0 | | | 1,065.0 | 1289 | 2 | ACO | 16 |
| 17 | MCA 2-Pipe | Lt. Tan | ACO | 2 | Interior Perimeter | MCA-Fan Coil | | | | | 21,760 | | – | | | | – | 2 | ACO | 17 |
| 18 | MCA 2-Pipe | Lt. Tan | ACO | 2 | Middle | MCA-AHU | | | 15 | 3660 | 24,400 | 15.0 | 131.0 | | | 858.0 | 744 | 2 | ACO | 18 |
| 19 | Steam Heat/RH w/ DX & Miscl. Cooling | Dk. Tan | BBO | 2 | Middle | Steam-AHU | DX Cooling | | 15 | 4,413 | 29,420 | 1.0 | 65.0 | | | 2,879.0 | 919 | 2 | BBO | 19 |
| 20 | Cooling (DX & miscl. Chillers) | Green | CA3 | 2 | Middle | DX-AHU | | | 0 | | 27,660 | 0 | | | | 3,276.4 | 664 | 2 | CA3 | 20 |
| 21 | *SECOND (2nd) FLOOR Summary* | | | *2* | *All 2nd Floor Zones* | *2nd Floor Sys.* | | | | *8,073* | *130,950* | *779* | *1,369* | *0* | *0* | *8,098* | *3,616* | *2* | | 21 |
| 22 | MCA 2-Pipe | Lt. Tan | ACO | 3 | Exterior Perimeter | MCA-Fan Coil | | | | | 27,710 | 763.0 | 1,173.0 | | | 1,085.0 | 1289 | 3 | ACO | 22 |
| 23 | MCA 2-Pipe | Lt. Tan | ACO | 3 | Interior Perimeter | MCA-Fan Coil | | | | | 21,760 | | – | | | | – | 3 | ACO | 23 |
| 24 | MCA 2-Pipe | Lt. Tan | ACO | 3 | Middle | MCA-AHU | | | 15 | 4477.5 | 29,850 | 16.0 | 151.0 | | | 1,051.0 | 910 | 3 | ACO | 24 |
| 25 | Steam Heat/RH w/ DX & Miscl. Cooling | Dk. Tan | BBO | 3 | Middle | Steam-AHU | DX Cooling | | 15 | 2575.5 | 17,170 | 2.0 | 50.0 | | | 1,586.0 | 524 | 3 | BBO | 25 |
| 26 | Cooling (DX & miscl. Chillers) | Green | CA3 | 3 | Middle | DX-AHU | | | 0 | | 18,870 | 0 | | | | 2,235.0 | 453 | 3 | CA3 | 26 |
| 27 | *THIRD (3rd) FLOOR Summary* | | | *3* | *All 3rd Floor Zones* | *3rd Floor Sys.* | | | | *7,053* | *115,360* | *781* | *1,374* | | | *5,957* | *3,176* | *3* | | 27 |
| 28 | MCA 2-Pipe | Lt. Tan | ACO | 4 | Exterior Perimeter | MCA-Fan Coil | | | | | 32,540 | 1,366.0 | 1,440.0 | | | 1,111.0 | 1180 | 4 | ACO | 28 |
| 29 | MCA 2-Pipe | Lt. Tan | ACO | 4 | Interior Perimeter | MCA-Fan Coil | | | | | 25,520 | | – | | | | – | 4 | ACO | 29 |
| 30 | MCA 2-Pipe | Lt. Tan | ACO | 4 | Middle | MCA-AHU | | | 15 | 4510.5 | 30,070 | 321.0 | 425.0 | | | 878.0 | 871 | 4 | ACO | 30 |
| 31 | Steam Heat/RH w/ DX & Miscl. Cooling | Dk. Tan | BBO | 4 | Middle - Clean Room | Steam-AHU | DX Cooling | | 40 | 10,000 | 50,000 | 6,320.0 | 903.0 | | | 8,418.0 | 1708 | 4 | BBO | 31 |
| 32 | Steam Heat/RH w/ DX & Miscl. Cooling | Dk. Tan | BBO | 4 | Middle - Office/Labs | Steam-AHU | DX Cooling | | 15 | 996 | 6,640 | 26.0 | 64.0 | | | 423.0 | 198 | 4 | BBO | 32 |
| 33 | Cooling (DX & miscl. Chillers) | Green | CA3 | 4 | Middle | DX-AHU | | | 0 | | 69,080 | 0 | | | | 5,027.0 | 1626 | 4 | CA3 | 33 |
| 34 | MCA Heat Only | Blue | CA3 | 4 | Elevator Tower Spaces at Ends | | MCA Ht-Fin Tube/Conv. | | | | 0 | 0 | – | | | | | 4 | CA3 | 34 |
| 35 | *FOURTH (4th) FLOOR Summary* | | | *4* | *All 4th Floor Zones* | *4th Floor Sys.* | | | | *15,507* | *213,850* | *8,033* | *2,832* | *0* | *0* | *15,857* | *5,583* | *4* | | 35 |
| | | | | | | | | *TYPICAL:* | | | | | | | | | | | | |
| | | | | | | | | *TOTALS:* | | 44,175 | 613,951 | 13,482 | 9,008 | 1,939 | 1,558 | 36,764 | 15,872 | | | |
| Item # | DRAWING DESCRIPTION: | Color (s) | EZDOE Model FTMO+ | Floor | ZONE | Serving System #1 | Serving System #2 | Serving System #3 | (% cfm) OUTSIDE AIR | (cfm) | Zone Supply Flow (cfm) | HEATING SS-A Sys. Ld Ann. Tot. (MMBtu) | Zone Max. SS-A Monthly Demand (MBtuh) | BASEBOARD Zone SS-B Tot. (MMBtu) | Max. Rate (MBtuh) | COOLING SS-A Sys. Ld Ann. (MMBtu) | Zone Max. SS-A Monthly Demand (MBtuh) | Floor | EZDOE Model FTMO+ | Item # |

| System | mmBtu | mmBtu |
|---|---|---|
| Hot Water Boiler Plant Loads | 4.7 | 5,394 |
| Steam Boiler Loads | 3.1 | 8,929 |
| Chilled Water Loads | 7.7 | 7,690 |
| DX Cooling Loads | 8.2 | 29,074 |

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25-Jun-96

## 5.5 Comparison of Modeling Results

### 5.5.1 General

The comparison of models for heating and cooling with the equipment lists in Section 3 is summarized in Tables 5.5.1.1 and 5.5.1.2

**Table 5.5.1.1, Building 2700 - Heating/Reheat Model Comparisons**

| | Steam Model | | | Heat Loss Model (Heating only) | EZDOE Modeling Results | | | Equip. List Connect Loads | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Heat | Reheat | Total | | MCA HW | Steam Units | Model Total | MCA HW | Steam Units | Total |
| Heating Load (mmBtu/hr or `mlb/hr) | 7.5 | 1.2 | 8.7 | 8.7 | 5.7 | 3.1 | 8.8 | 5.7 | 5.2 | 10.9 |
| Annual Heating (mmBtu or mlbs) | 6,910 | 6,990 | 13,900 | 13,860 | 5,500 | 8,900 | 14,300 | --- | --- | --- |

Notes: 1) The Building 2700 Heating Peak for the steam model is estimated to be three (3) times the peak month average flow rate of 60 mlbs/day.
2) During the heating season Building 2700 is estimated to require 85% of the steam model total of 8,130 mlbs for heating.
3) For an explanation of why the heat loss annual heating is predicted high refer to Section 5.3.
4) The steam model predicts the heat and reheat loads separately, while the EZDOE modeling lumps the two together in the "Steam" category units.

Table 5.5.1.1 shows that the Building 2700 combined heating and reheat loads are about 14,000 mmBtu or mlbs per year. The combined peak for Building 2700 is expected to be about 9 mmBtu/hr or 9,000 lb/hr. The peak capacity relates to about 85% the connected equipment loads.

In Table 5.5.1.2, the cooling load peak of 1,330 tons is found to be near 75% of the connected equipment loads. The EZDOE cooling load for the year totaled 35,400 mmBtu per year. The estimated kWh/yr for cooling is 2,950,000. This number will compared to values calculated in the electric model in Section 5.6

**Table 5.5.1.2, Building 2700, Cooling Modeling Comparison**

| | EZDOE Modeling Results | | | Equip. List Connect Load | | |
|---|---|---|---|---|---|---|
| | MCA CHW | DX & Misc | Total | MCA CHW | DX & Misc | Total |
| Cooling Load Peak (tons) | 640 | 690 | 1,330 | 663 | 1,134 | 1,797 |
| Cooling Load Peak (mmBtu/hr) | 7.7 | 8.2 | 15.9 | 8.0 | 13.6 | 21.6 |
| Annual Cooling (mmBtu/yr) | 7,700 | 29,100 | 36,800 | --- | --- | --- |

## 5.6 Electric Model - Building 2700

### 5.6.1 General

An electric model, as described in Section 2.5.5, has been developed by Entech for Building 2700. The model represents our estimation of the current operation of the building. The model is employed to approximate the contribution from all electrical users to an annual electric cost.

### 5.6.2 Results

The electric model culminated the modeling information provided in Section 3, 4, and 5. It defines a baseline for Building 2700's influence on the electric bills for the Hope Road/Charles Wood Area. Table 5.6.2.1 summarizes the results of the electric model. Table 5.6.2.2 is the electric model for the entire building.

**Table 5.6.2.1, Electric Model Cost Summary**

| Location | Cost/yr |
|---|---:|
| Basement HVAC | $35,850 |
| First/Mezzanine HVAC | $91,000 |
| Second Floor HVAC | $84,470 |
| Third Floor HVAC | $98,820 |
| Fourth Floor HVAC | $173,300 |
| Exhaust Fans | $44,940 |
| Chillers - Towers | $74,850 |
| Pumps | $85,790 |
| Misc. Refrigeration | $8,420 |
| Lighting | $443,730 |
| Misc. Equipment | $302,790 |
| Totals | $1,443,960 |

The summary above in the Table 5.6.2.1 reflects that the lighting and miscellaneous equipment constitute approximately 52% of the total electrical yearly cost. The fourth floor is shown to have the highest electric cost. Based on the modeled area the of building the average cost per square foot is $2.49 ($1,443,960 ÷ 580,000). It is important to realize that the electric model is an approximation of the electricity used by each load. It shows general relationships and gives a reasonable allocation of electrical demand, usage and cost.

| HVAC Item | Design/Site Designatio | Equip. Type | Field Data/Reference/(Location) | Area Served | Cooling Equipment Field Data/Reference/(Location) | Total Connected Load (kW) | Winter Demand kW/month | Intermed. Demand kW/month | Su De kW |
|---|---|---|---|---|---|---|---|---|---|
| | HVAC Airside Equipment - General Information | | | | | | | | |
| 1 | - | AHU | McQuay LML(OA418 - JCALS) | Cafetena | McQuay ALP(Outside on grade) | 49.3 | 12.3 | 24.7 | |
| 2 | - | AC | Camer 38(Cafetena - above ceiling) | Cafetena office | Camer 38(Location unknown) | 5.1 | 1.3 | 2.5 | |
| 3 | - | AC | Camer 38(Cafetena - above ceiling) | Cafetena office | Camer 38(Location unknown) | 5.1 | 1.3 | 2.5 | |
| 4 | - | AHU | unknown(OA400) | OA400 (J-CALS) | unknown (Outside on grade) | 49.3 | 12.3 | 24.7 | |
| 5 | - | AHU | unknown(Mech. Room (MR)-OA-1) | OA415 offices | unknown(Outside on grade) | 7.9 | 2.0 | 3.9 | |
| 6 | - | Recirc. AC | Liebert(OA-413) | OA413 | Liebert(Outside on grade) | 10.8 | 5.4 | 8.1 | |
| 7 | - | Recirc. AC | Liebert(OA-334) | OA334 | Liebert(Outside on grade) | 20.3 | 10.2 | 15.2 | |
| 8 | - | Recirc. AC | Liebert(OA-336) | OA336 | Liebert(Outside on grade) | 10.8 | 5.4 | 8.1 | |
| 9 | AHU-B-3 | AHU-MCA | Trane C.C (OA403) | OA403 offices | Plant Chilled Water @ 55 degrees F | 1.1 | 0.8 | 0.8 | |
| 10 | - | AHU-MCA | unknown(OA418 - JCALS offices) | OA418 (J-CALS) | Plant Chilled Water @ 55 degrees F | 0.8 | 0.6 | 0.6 | |
| 11 | - | AHU-MCA | unknown(OA418 - JCALS offices) | OA418 (J-CALS) | Plant Chilled Water @ 55 degrees F | 0.8 | 0.6 | 0.6 | |
| 12 | - | AHU-MCA | unknown(OA418 - JCALS offices) | OA418 (J-CALS) | Plant Chilled Water @ 55 degrees F | 0.8 | 0.6 | 0.6 | |
| 13 | - | AHU-MCA | unknown(OA418 - JCALS offices) | OA418 (J-CALS) | Plant Chilled Water @ 55 degrees F | 0.8 | 0.6 | 0.6 | |
| 14 | - | AHU-MCA | unknown(OA418 - JCALS offices) | OA418 (J-CALS) | Plant Chilled Water @ 55 degrees F | 0.8 | 0.6 | 0.6 | |
| 15 | - | UH | unknown(OA501-storage) | OA501 | N/A | 0.03 | 0.022 | 0.011 | |
| 16 | - | UH | unknown(OA503-storage) | OA503 | N/A | 0.03 | 0.022 | 0.011 | |
| 17 | - | UH | unknown(OA321-hallway) | OA321 | N/A | 0.03 | 0.022 | 0.011 | |
| 18 | - | UH | unknown(OA326-Substations #2 & 6) | OA326 | N/A | 0.03 | 0.022 | 0.011 | |
| 19 | - | UH | unknown(OA328-Substations #2 & 6) | OA328 | N/A | 0.03 | 0.022 | 0.011 | |
| 20 | FC-1(9) | FC | unknown(9 on West wall) | OA400 Area - West | Plant Chilled Water @ 55 degrees F | 0.11 | 0.1 | 0.1 | |
| 21 | C-4 | Convector | unknown(Near Elevator #1 - Basement) | Hallway - Elev. #1 | N/A | 0.00 | 0.0 | 0.0 | |
| 22 | - | Fin-tube | unknown(625 ft. of East/South wall) | JCALS/Cafetena/Lab | N/A | 0.00 | 0.0 | 0.0 | |
| 23 | - | AHU | unknown(1B110 Comp. Lab Mezz.) | B110,112/Mezz | unknown (Outside on grade) | 6.0 | 3.0 | 4.5 | |
| 24 | - | AHU | Atmostech(1B120 Cleanroom) | 1B120 Cleanroom | Compressor in 1B120 & tower on roof | 33.3 | 25.0 | 25.0 | |
| 25 | - | AHU | McQuay VSC(1B134 Pnnt Shop) | 1B134 Pnnt Shop | Packaged unit w/tower on roof | 44.6 | 11.1 | 22.3 | |
| 26 | - | AHU | unknown(1B115) | 1B115 office/storage | unknown (Outside on grade) | 9.0 | 0.1 | 2.2 | |
| 27 | - | AHU | unknown(1B115 - backup unit) | 1B115 office/storage | unknown (Outside on grade) | - | 0.0 | 0.0 | |
| 28 | - | AHU | Trane BWV180(1B131 Computer Rm.) | 1B131/Mezz. | Trane BWA 180(Outside on grade) | 15.1 | 3.8 | 7.6 | |
| 29 | - | AHU | Trane BWE120(1B131 Computer Rm.) | 1B131/Mezz. | Trane BWE 120(Outside on grade) | 7.2 | 1.8 | 1.8 | |
| 30 | - | AHU | Trane BTE120(1B131 Computer Rm.) | 1B131/Mezz. | Trane BWA 120(Outside on grade) | 5.6 | 1.4 | 1.4 | |
| 31 | - | AHU | Trane BTE120(1B131 Computer Rm.) | 1B131/Mezz | Trane BWA 120(Outside on grade) | - | 0.0 | 0.0 | |
| 32 | - | AHU | Trane BWE090(1B131 Computer Rm.) | 1B131/Mezz. | Trane BTA 090(Outside on grade) | - | 0.0 | 0.0 | |
| 33 | AC-6 | AHU | Camer(MR - 1B123) | 1B123 | Compressor in 1B123 & tower on roof | 4.1 | 1.0 | 2.0 | |
| 34 | - | AHU | Comfort Air(1B138) | 1B138 Offices | Comfort Air(Outside on grade) | 14.4 | 3.6 | 7.2 | |
| 35 | AC-1(New) | AHU | Dunham Bush(1B142) | 1B142 | Compressor in 1B142 & tower on roof | 20.2 | 5.0 | 10.1 | |
| 36 | - | AHU | Chrysler 1005(1B141A) | 1B141A | Compressor in 1B141A & tower on roof | 6.4 | 1.6 | 3.2 | |
| 37 | - | UH | unknown(Stairway #1) | Stairway #1 | N/A | 0.03 | 0.022 | 0.011 | |
| 38 | - | UH | unknown(1B107 - storage) | 1B107 | N/A | 0.07 | 0.056 | 0.028 | |
| 39 | - | UH | unknown(1B109 - storage) | 1B109 | N/A | 0.07 | 0.056 | 0.028 | |
| 40 | - | UH | unknown(1B111- storage) | 1B111 | N/A | 0.07 | 0.056 | 0.028 | |
| 41 | - | UH | unknown (1B109 - storage) | 1B107 | N/A | 0.03 | 0.022 | 0.011 | |
| 42 | - | UH | unknown (1B110 - shop) | 1B110 | N/A | 0.07 | 0.056 | 0.028 | |
| 43 | - | UH | unknown(Stairway #3) | Stairway #3 | N/A | 0.03 | 0.022 | 0.011 | |
| 44 | C-4 | Convector | unknown(Near Elevator #1 - First floor) | Hallway - Elev. #1 | N/A | 0.00 | 0.0 | 0.0 | |
| 45 | C-2(2) | Convector | unknown(1B4L ladies room) | 1B4L | N/A | 0.00 | 0.0 | 0.0 | |
| 46 | - | Fin-tube | unknown(420 ft of 1B100 Area)) | Vanous | N/A | 0.00 | 0.0 | 0.0 | |
| 47 | - | AHU | Camer 50(1B202 - Photography) | 1B202 | unknown(Location unknown) | 7.3 | 1.8 | 3.7 | |
| 48 | - | AHU | Trane SAHB(1B205 - EMS Room) | 1B205 | Trane(Outside on grade) | 7.5 | 1.9 | 3.7 | |
| 49 | AHU-2 | AHU-MCA | Trane C.C (1B204) | 1B204 | Plant Chilled Water @ 55 degrees F | 1.5 | 1.1 | 1.1 | |
| 50 | - | AHU | Chrysler 1005(1B212) | 1B212 | Compressor in 1B212 & tower on roof | 6.4 | 4.8 | 4.8 | |
| 51 | - | UH | unknown (1B212 - shop) | 1B212 | N/A | 0.07 | 0.056 | 0.028 | |
| 52 | - | Fin-tube | unknown(200 ft of 1B200 Area)) | Vanous | N/A | 0.00 | 0.0 | 0.0 | |
| 53 | - | AHU-MCA | Camer 39(1B302 - offices) | 1B302 | Plant Chilled Water @ 55 degrees F | 0.8 | 0.6 | 0.6 | |
| 54 | - | AHU-MCA | Carrier 39(1B302 - offices) | 1B302 | Plant Chilled Water @ 55 degrees F | 1.2 | 0.9 | 0.9 | |
| 55 | - | AHU-MCA | Camer 39(1B306 - offices) | 1B306 | Plant Chilled Water @ 55 degrees F | 1.2 | 0.9 | 0.9 | |
| 56 | - | AHU-MCA | Camer 39(1B306 - offices) | 1B306 | Plant Chilled Water @ 55 degrees F | 1.2 | 0.9 | 0.9 | |
| 57 | AHU-3 | AHU-MCA | Trane C.C (1B322) | 1B318,1B324, Entrance | Plant Chilled Water @ 55 degrees F | 2.2 | 1.7 | 1.7 | |
| 58 | - | AHU-MCA | McQuay(!B332 - offices) | 1B332 | Plant Chilled Water @ 55 degrees F | 1.1 | 0.8 | 0.8 | |
| 59 | - | AHU-MCA | McQuay(!B332 - offices) | 1B332 | Plant Chilled Water @ 55 degrees F | 1.1 | 0.8 | 0.8 | |
| 60 | - | UH | unknown(Stairway #4) | Stairway #4 | N/A | 0.02 | 0.017 | 0.008 | |
| 61 | - | UH | unknown(1B307)) | 1B307 | N/A | 0.11 | 0.084 | 0.042 | |
| 62 | UH-21 | UH | unknown(hallway near 1B322) | hallway | N/A | 0.04 | 0.028 | 0.014 | |
| 63 | - | UH | unknown(1B321 Receiving) | 1B321 | N/A | 0.15 | 0.112 | 0.056 | |
| 64 | - | UH | unknown(1B321 Receiving) | 1B321 | N/A | 0.15 | 0.112 | 0.056 | |
| 65 | - | Recirc. AC | unknown(1B322- above ceiling) | 1B324 | Compressor in 1B322 & tower on roof | 18.7 | 9.4 | 14.0 | |
| 66 | UH-23 | UH | unknown(Stairway #6) | Stairway #6 | N/A | 0.02 | 0.017 | 0.008 | |
| 67 | UH-1to7(Ne | (7)UH-MCA | unknown((6) Bldg. 2706 & (1)Nit. Stor. Area | Bldg. 2706 & Nitrogen Stora | N/A | 0.32 | 0.2 | 0.2 | |
| 68 | C-3 | Convector | unknown(1B6L ladies room) | 1B6L | N/A | 0.00 | 0.0 | 0.0 | |
| 69 | C-2 | Convector | unknown(1B6G gentlemen room) | 1B7G | N/A | 0.00 | 0.0 | 0.0 | |
| 70 | FC-1(11) | FC | unknown(11 in 1B300 Area) | vanous | Plant Chilled Water @ 55 degrees F | 0.14 | 0.1 | 0.1 | |
| 71 | - | Fin-tube | unknown(320 ft of 1B300 Area) | vanous | N/A | 0.00 | 0.0 | 0.0 | |
| 72 | CUH-1(2) | CUH | unknown(New Entrance Area) | entrance way | N/A | 0.02 | 0.02 | 0.02 | |
| 73 | - | AHU-MCA | Camer 39(1B401 - offices) | 1B401 | Plant Chilled Water @ 55 degrees F | 1.2 | 0.9 | 0.9 | |
| 74 | AHU-4 | AHU-MCA | Trane C.C.(1B405 - Library) | Library | Plant Chilled Water @ 55 degrees F | 2.1 | 1.5 | 1.5 | |
| 75 | - | AHU-MCA | Trane(above 1B416 - offices) | 1B416 area | Plant Chilled Water @ 55 degrees F | 5.6 | 4.2 | 4.2 | |

# FT. MONMOUTH, DEPARTMENT OF THE ARMY
## BUILDING 2700 ELECTRIC MODEL - ALL FLOORS & BUILDING 2706 HVAC EQUIPMENT

TABLE 5.6.2.2

| | | | | | | Winter Billing Months | | | | Intermediate Billing Months | | | | Summer Billing Months | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | | |
| Area erved | Cooling Equipment Field Data/Reference/(Location) | Total Connected Load (kW) | Winter Demand kW/month | Intermed. Demand kW/month | Summer Demand kW/month | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | Demand kW/Yr. | Off- KW |
| | McQuay ALP(Outside on grade) | 49.3 | 12.3 | 24.7 | 37.0 | 1 | 1,480 | 4 | 3,947 | 2 | 2,961 | 4 | 3,947 | 4 | 5,921 | 6 | 5,921 | 148 | |
| ice | Carrier 38(Location unknown) | 5.1 | 1.3 | 2.5 | 3.8 | 1 | 152 | 4 | 405 | 2 | 304 | 4 | 405 | 4 | 608 | 6 | 608 | 15 | |
| ice | Carrier 38(Location unknown) | 5.1 | 1.3 | 2.5 | 3.8 | 1 | 152 | 4 | 405 | 2 | 304 | 4 | 405 | 4 | 608 | 6 | 608 | 15 | |
| ALS) | unknown (Outside on grade) | 49.3 | 12.3 | 24.7 | 37.0 | 1 | 1,480 | 4 | 3,947 | 2 | 2,961 | 4 | 3,947 | 4 | 5,921 | 6 | 5,921 | 148 | 1 |
| 3s | unknown(Outside on grade) | 7.9 | 2.0 | 3.9 | 5.9 | 1 | 236 | 4 | 630 | 2 | 472 | 4 | 630 | 4 | 945 | 6 | 945 | 24 | |
| | Liebert(Outside on grade) | 10.8 | 5.4 | 8.1 | 8.1 | 2 | 649 | 6 | 1,298 | 3 | 974 | 8 | 1,731 | 4 | 1,298 | 10 | 2,163 | 54 | |
| | Liebert(Outside on grade) | 20.3 | 10.2 | 15.2 | 15.2 | 2 | 1,220 | 6 | 2,439 | 3 | 1,830 | 8 | 3,253 | 4 | 2,439 | 10 | 4,066 | 102 | 1 |
| | Liebert(Outside on grade) | 10.8 | 5.4 | 8.1 | 8.1 | 2 | 649 | 6 | 1,298 | 3 | 974 | 8 | 1,731 | 4 | 1,298 | 10 | 2,163 | 54 | |
| s | Plant Chilled Water @ 55 degrees F | 1.1 | 0.8 | 0.8 | 0.8 | 12 | 405 | 8 | 180 | 12 | 405 | 8 | 180 | 12 | 405 | 8 | 180 | 7 | |
| ALS) | Plant Chilled Water @ 55 degrees F | 0.8 | 0.6 | 0.6 | 0.6 | 12 | 283 | 8 | 126 | 12 | 283 | 8 | 126 | 12 | 283 | 8 | 126 | 5 | |
| ALS) | Plant Chilled Water @ 55 degrees F | 0.8 | 0.6 | 0.6 | 0.6 | 12 | 283 | 8 | 126 | 12 | 283 | 8 | 126 | 12 | 283 | 8 | 126 | 5 | |
| ALS) | Plant Chilled Water @ 55 degrees F | 0.8 | 0.6 | 0.6 | 0.6 | 12 | 283 | 8 | 126 | 12 | 283 | 8 | 126 | 12 | 283 | 8 | 126 | 5 | |
| ALS) | Plant Chilled Water @ 55 degrees F | 0.8 | 0.6 | 0.6 | 0.6 | 12 | 283 | 8 | 126 | 12 | 283 | 8 | 126 | 12 | 283 | 8 | 126 | 5 | |
| ALS) | Plant Chilled Water @ 55 degrees F | 0.8 | 0.6 | 0.6 | 0.6 | 12 | 283 | 8 | 126 | 12 | 283 | 8 | 126 | 12 | 283 | 8 | 126 | 5 | |
| | N/A | 0.03 | 0.022 | 0.011 | 0.0 | 10 | 9 | 8 | 5 | 8 | 7 | 6 | 4 | 0.5 | 0 | 0.5 | 0 | 0 | |
| | N/A | 0.03 | 0.022 | 0.011 | 0.0 | 10 | 9 | 8 | 5 | 8 | 7 | 6 | 4 | 0.5 | 0 | 0.5 | 0 | 0 | |
| | N/A | 0.03 | 0.022 | 0.011 | 0.0 | 10 | 9 | 8 | 5 | 8 | 7 | 6 | 4 | 0.5 | 0 | 0.5 | 0 | 0 | |
| | N/A | 0.03 | 0.022 | 0.011 | 0.0 | 10 | 9 | 8 | 5 | 8 | 7 | 6 | 4 | 0.5 | 0 | 0.5 | 0 | 0 | |
| | N/A | 0.03 | 0.022 | 0.011 | 0.0 | 10 | 9 | 8 | 5 | 8 | 7 | 6 | 4 | 0.5 | 0 | 0.5 | 0 | 0 | |
| - West | Plant Chilled Water @ 55 degrees F | 0.11 | 0.1 | 0.1 | 0.1 | 12 | 40 | 8 | 18 | 12 | 40 | 8 | 18 | 12 | 40 | 8 | 18 | 1 | |
| v #1 | N/A | 0.00 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| ena/Lat | N/A | 0.00 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| zz | unknown (Outside on grade) | 6.0 | 3.0 | 4.5 | 4.5 | 2 | 360 | 6 | 721 | 3 | 540 | 8 | 961 | 4 | 721 | 10 | 1,201 | 30 | |
| room | Compressor in 1B120 & tower on roof | 33.3 | 25.0 | 25.0 | 25.0 | 8 | 7,999 | 8 | 5,333 | 8 | 7,999 | 8 | 5,333 | 8 | 7,999 | 10 | 6,666 | 200 | 6 |
| Shop | Packaged unit w/tower on roof | 44.6 | 11.1 | 22.3 | 33.4 | 2 | 2,674 | 4 | 3,565 | 2 | 2,674 | 6 | 5,348 | 4 | 5,348 | 8 | 7,131 | 134 | 2 |
| storage | unknown (Outside on grade) | 9.0 | 0.1 | 2.2 | 3.6 | 1 | 269 | 1 | 180 | 2 | 539 | 2 | 359 | 4 | 1,077 | 6 | 1,077 | 9 | |
| storage | unknown (Outside on grade) | - | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | Trane BWA 180(Outside on grade) | 15.1 | 3.8 | 7.6 | 11.3 | 2 | 908 | 4 | 1,210 | 4 | 1,815 | 6 | 1,815 | 4 | 1,815 | 8 | 2,421 | 45 | 1 |
| | Trane BWE 120(Outside on grade) | 7.2 | 1.8 | 1.8 | 3.6 | 1 | 217 | 2 | 289 | 2 | 433 | 3 | 433 | 2 | 433 | 4 | 578 | 14 | |
| | Trane BWA 120(Outside on grade) | 5.6 | 1.4 | 1.4 | 2.8 | 1 | 169 | 2 | 225 | 2 | 338 | 3 | 338 | 2 | 338 | 4 | 450 | 11 | |
| | Trane BWA 120(Outside on grade) | - | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | Trane BTA 090(Outside on grade) | - | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | Compressor in 1B123 & tower on roof | 4.1 | 1.0 | 2.0 | 3.1 | 1 | 122 | 4 | 326 | 2 | 244 | 4 | 326 | 4 | 489 | 6 | 489 | 12 | |
| s | Comfort Air(Outside on grade) | 14.4 | 3.6 | 7.2 | 10.8 | 1 | 432 | 4 | 1,152 | 2 | 864 | 4 | 1,152 | 4 | 1,728 | 6 | 1,728 | 43 | |
| | Compressor in 1B142 & tower on roof | 20.2 | 5.0 | 10.1 | 15.1 | 1 | 605 | 4 | 1,613 | 2 | 1,210 | 4 | 1,613 | 4 | 2,420 | 6 | 2,420 | 60 | |
| | Compressor in 1B141A & tower on roof | 6.4 | 1.6 | 3.2 | 4.8 | 1 | 193 | 4 | 514 | 2 | 386 | 4 | 514 | 4 | 771 | 6 | 771 | 19 | |
| | N/A | 0.03 | 0.022 | 0.011 | 0.0 | 10 | 9 | 8 | 5 | 8 | 7 | 6 | 4 | 0.5 | 0 | 0.5 | 0 | 0 | |
| | N/A | 0.07 | 0.056 | 0.028 | 0.1 | 10 | 22 | 8 | 12 | 8 | 18 | 6 | 9 | 0.5 | 1 | 0.5 | 1 | 0 | |
| | N/A | 0.07 | 0.056 | 0.028 | 0.1 | 10 | 22 | 8 | 12 | 8 | 18 | 6 | 9 | 0.5 | 1 | 0.5 | 1 | 0 | |
| | N/A | 0.07 | 0.056 | 0.028 | 0.1 | 10 | 22 | 8 | 12 | 8 | 18 | 6 | 9 | 0.5 | 1 | 0.5 | 1 | 0 | |
| | N/A | 0.03 | 0.022 | 0.011 | 0.0 | 10 | 9 | 8 | 5 | 8 | 7 | 6 | 4 | 0.5 | 0 | 0.5 | 0 | 0 | |
| | N/A | 0.07 | 0.056 | 0.028 | 0.1 | 10 | 22 | 8 | 12 | 8 | 18 | 6 | 9 | 0.5 | 1 | 0.5 | 1 | 0 | |
| | N/A | 0.03 | 0.022 | 0.011 | 0.0 | 10 | 9 | 8 | 5 | 8 | 7 | 6 | 4 | 0.5 | 0 | 0.5 | 0 | 0 | |
| v. #1 | N/A | 0.00 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | N/A | 0.00 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | N/A | 0.00 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | unknown(Location unknown) | 7.3 | 1.8 | 3.7 | 5.5 | 1 | 220 | 4 | 586 | 2 | 439 | 4 | 586 | 4 | 879 | 6 | 879 | 22 | |
| | Trane(Outside on grade) | 7.5 | 1.9 | 3.7 | 5.6 | 1 | 225 | 4 | 599 | 2 | 449 | 4 | 599 | 4 | 899 | 6 | 899 | 22 | |
| | Plant Chilled Water @ 55 degrees F | 1.5 | 1.1 | 1.1 | 1.1 | 12 | 537 | 8 | 239 | 12 | 537 | 8 | 239 | 12 | 537 | 8 | 239 | 9 | |
| | Compressor in 1B212 & tower on roof | 6.4 | 4.8 | 4.8 | 4.8 | 8 | 1,543 | 10 | 1,286 | 4 | 771 | 10 | 1,286 | 4 | 771 | 10 | 1,286 | 39 | |
| | N/A | 0.07 | 0.056 | 0.028 | 0.1 | 10 | 22 | 8 | 12 | 8 | 18 | 6 | 9 | 0.5 | 1 | 0.5 | 1 | 0 | |
| | N/A | 0.00 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | Plant Chilled Water @ 55 degrees F | 0.8 | 0.6 | 0.6 | 0.6 | 12 | 300 | 8 | 133 | 12 | 300 | 8 | 133 | 12 | 300 | 8 | 133 | 5 | |
| | Plant Chilled Water @ 55 degrees F | 1.2 | 0.9 | 0.9 | 0.9 | 12 | 420 | 8 | 187 | 12 | 420 | 8 | 187 | 12 | 420 | 8 | 187 | 7 | |
| | Plant Chilled Water @ 55 degrees F | 1.2 | 0.9 | 0.9 | 0.9 | 12 | 420 | 8 | 187 | 12 | 420 | 8 | 187 | 12 | 420 | 8 | 187 | 7 | |
| | Plant Chilled Water @ 55 degrees F | 1.2 | 0.9 | 0.9 | 0.9 | 12 | 420 | 8 | 187 | 12 | 420 | 8 | 187 | 12 | 420 | 8 | 187 | 7 | |
| , Entrance | Plant Chilled Water @ 55 degrees F | 2.2 | 1.7 | 1.7 | 1.7 | 12 | 806 | 8 | 358 | 12 | 806 | 8 | 358 | 12 | 806 | 8 | 358 | 13 | |
| | Plant Chilled Water @ 55 degrees F | 1.1 | 0.8 | 0.8 | 0.8 | 12 | 403 | 8 | 179 | 12 | 403 | 8 | 179 | 12 | 403 | 8 | 179 | 7 | |
| | Plant Chilled Water @ 55 degrees F | 1.1 | 0.8 | 0.8 | 0.8 | 12 | 403 | 8 | 179 | 12 | 403 | 8 | 179 | 12 | 403 | 8 | 179 | 7 | |
| | N/A | 0.02 | 0.017 | 0.008 | 0.0 | 10 | 7 | 8 | 4 | 8 | 5 | 6 | 3 | 0.5 | 0 | 0.5 | 0 | 0 | |
| | N/A | 0.11 | 0.084 | 0.042 | 0.1 | 10 | 34 | 8 | 18 | 8 | 27 | 6 | 13 | 0.5 | 2 | 0.5 | 1 | 1 | |
| | N/A | 0.04 | 0.028 | 0.014 | 0.0 | 10 | 11 | 8 | 6 | 8 | 9 | 6 | 4 | 0.5 | 1 | 0.5 | 0 | 0 | |
| | N/A | 0.15 | 0.112 | 0.056 | 0.1 | 10 | 45 | 8 | 24 | 8 | 36 | 6 | 18 | 0.5 | 2 | 0.5 | 1 | 1 | |
| | N/A | 0.15 | 0.112 | 0.056 | 0.1 | 10 | 45 | 8 | 24 | 8 | 36 | 6 | 18 | 0.5 | 2 | 0.5 | 1 | 1 | |
| | Compressor in 1B322 & tower on roof | 18.7 | 9.4 | 14.0 | 14.0 | 2 | 1,124 | 6 | 2,247 | 3 | 1,686 | 8 | 2,997 | 4 | 2,247 | 10 | 3,746 | 94 | 1 |
| | N/A | 0.02 | 0.017 | 0.008 | 0.0 | 10 | 7 | 8 | 4 | 8 | 5 | 6 | 3 | 0.5 | 0 | 0.5 | 0 | 0 | |
| Nitrogen Stora | N/A | 0.32 | 0.2 | 0.2 | 0.0 | 12 | 114 | 8 | 51 | 8 | 76 | 6 | 38 | 0 | 0 | 0 | 0 | 2 | |
| | N/A | 0.00 | 0.0 | 0.0 | 0.0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | N/A | 0.00 | 0.0 | 0.0 | 0.0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | Plant Chilled Water @ 55 degrees F | 0.14 | 0.1 | 0.1 | 0.1 | 12 | 49 | 8 | 22 | 12 | 49 | 8 | 22 | 12 | 49 | 8 | 22 | 1 | |
| | N/A | 0.00 | 0.0 | 0.0 | 0.0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | N/A | 0.02 | 0.02 | 0.02 | 0.00 | 12 | 9 | 8 | 4 | 4 | 3 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | |
| | Plant Chilled Water @ 55 degrees F | 1.2 | 0.9 | 0.9 | 0.9 | 12 | 420 | 8 | 187 | 12 | 420 | 8 | 187 | 12 | 420 | 8 | 187 | 7 | |
| | Plant Chilled Water @ 55 degrees F | 2.1 | 1.5 | 1.5 | 1.5 | 12 | 739 | 8 | 328 | 12 | 739 | 8 | 328 | 12 | 739 | 8 | 328 | 12 | 5 |
| | Plant Chilled Water @ 55 degrees F | 5.6 | 4.2 | 4.2 | 4.2 | 12 | 2,012 | 8 | 894 | 12 | 2,012 | 8 | 894 | 12 | 2,012 | 8 | 894 | 34 | 16 |

2

## )F THE ARMY
## ,UILDING 2706 HVAC EQUIPMENT

| Intermediate Billing Months | | | | Summer Billing Months | | | | Non-Summer | | | | Summer | | | | Annual | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | | | | | | | | | | |
| hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | Demand kW/Yr. | Off-Peak KWH/Yr. | On-Peak KWH/Yr. | Cost $ | Demand kW/Yr. | Off-Peak KWH/Yr. | On-Peak KWH/Yr. | Cost $ | Cost $ | No. |
| 2 | 2,961 | 4 | 3,947 | 4 | 5,921 | 6 | 5,921 | 148 | 17,764 | 31,580 | $4,624 | 148 | 23,685 | 23,685 | $4,563 | $9,186 | 1 |
| 2 | 304 | 4 | 405 | 4 | 608 | 6 | 608 | 15 | 1,823 | 3,240 | $474 | 15 | 2,430 | 2,430 | $468 | $943 | 2 |
| 2 | 304 | 4 | 405 | 4 | 608 | 6 | 608 | 15 | 1,823 | 3,240 | $474 | 15 | 2,430 | 2,430 | $468 | $943 | 3 |
| 2 | 2,961 | 4 | 3,947 | 4 | 5,921 | 6 | 5,921 | 148 | 17,764 | 31,580 | $4,624 | 148 | 23,685 | 23,685 | $4,563 | $9,186 | 4 |
| 2 | 472 | 4 | 630 | 4 | 945 | 6 | 945 | 24 | 2,834 | 5,037 | $738 | 24 | 3,778 | 3,778 | $728 | $1,465 | 5 |
| 3 | 974 | 8 | 1,731 | 4 | 1,298 | 10 | 2,163 | 54 | 6,490 | 12,115 | $1,731 | 32 | 5,192 | 8,654 | $1,251 | $2,982 | 6 |
| 3 | 1,830 | 8 | 3,253 | 4 | 2,439 | 10 | 4,066 | 102 | 12,197 | 22,768 | $3,253 | 61 | 9,758 | 16,263 | $2,351 | $5,604 | 7 |
| 3 | 974 | 8 | 1,731 | 4 | 1,298 | 10 | 2,163 | 54 | 6,490 | 12,115 | $1,731 | 32 | 5,192 | 8,654 | $1,251 | $2,982 | 8 |
| 12 | 405 | 8 | 180 | 12 | 405 | 8 | 180 | 7 | 3,243 | 1,442 | $363 | 3 | 1,622 | 721 | $185 | $548 | 9 |
| 12 | 283 | 8 | 126 | 12 | 283 | 8 | 126 | 5 | 2,267 | 1,007 | $254 | 2 | 1,133 | 504 | $129 | $383 | 10 |
| 12 | 283 | 8 | 126 | 12 | 283 | 8 | 126 | 5 | 2,267 | 1,007 | $254 | 2 | 1,133 | 504 | $129 | $383 | 11 |
| 12 | 283 | 8 | 126 | 12 | 283 | 8 | 126 | 5 | 2,267 | 1,007 | $254 | 2 | 1,133 | 504 | $129 | $383 | 12 |
| 12 | 283 | 8 | 126 | 12 | 283 | 8 | 126 | 5 | 2,267 | 1,007 | $254 | 2 | 1,133 | 504 | $129 | $383 | 13 |
| 12 | 283 | 8 | 126 | 12 | 283 | 8 | 126 | 5 | 2,267 | 1,007 | $254 | 2 | 1,133 | 504 | $129 | $383 | 14 |
| 8 | 7 | 6 | 4 | 0.5 | 0 | 0.5 | 0 | 0 | 64 | 33 | $8 | 0 | 2 | 1 | $1 | $9 | 15 |
| 8 | 7 | 6 | 4 | 0.5 | 0 | 0.5 | 0 | 0 | 64 | 33 | $8 | 0 | 2 | 1 | $1 | $9 | 16 |
| 8 | 7 | 6 | 4 | 0.5 | 0 | 0.5 | 0 | 0 | 64 | 33 | $8 | 0 | 2 | 1 | $1 | $9 | 17 |
| 8 | 7 | 6 | 4 | 0.5 | 0 | 0.5 | 0 | 0 | 64 | 33 | $8 | 0 | 2 | 1 | $1 | $9 | 18 |
| 8 | 7 | 6 | 4 | 0.5 | 0 | 0.5 | 0 | 0 | 64 | 33 | $8 | 0 | 2 | 1 | $1 | $9 | 19 |
| 12 | 40 | 8 | 18 | 12 | 40 | 8 | 18 | 1 | 322 | 143 | $36 | 0 | 161 | 72 | $18 | $54 | 20 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 21 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 22 |
| 3 | 540 | 8 | 961 | 4 | 721 | 10 | 1,201 | 30 | 3,603 | 6,726 | $961 | 18 | 2,883 | 4,804 | $695 | $1,656 | 23 |
| 8 | 7,999 | 8 | 5,333 | 8 | 7,999 | 10 | 6,666 | 200 | 63,995 | 42,664 | $8,744 | 100 | 31,998 | 26,665 | $4,856 | $13,600 | 24 |
| 2 | 2,674 | 6 | 5,348 | 4 | 5,348 | 8 | 7,131 | 134 | 21,393 | 35,655 | $5,026 | 134 | 21,393 | 28,524 | $4,638 | $9,664 | 25 |
| 2 | 539 | 2 | 359 | 4 | 1,077 | 6 | 1,077 | 9 | 3,231 | 2,154 | $436 | 14 | 4,308 | 4,308 | $714 | $1,150 | 26 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 27 |
| 4 | 1,815 | 6 | 1,815 | 4 | 1,815 | 8 | 2,421 | 45 | 10,893 | 12,103 | $1,933 | 45 | 7,262 | 9,683 | $1,574 | $3,507 | 28 |
| 2 | 433 | 3 | 433 | 2 | 433 | 4 | 578 | 14 | 2,600 | 2,889 | $491 | 14 | 1,733 | 2,311 | $409 | $900 | 29 |
| 2 | 338 | 3 | 338 | 2 | 338 | 4 | 450 | 11 | 2,027 | 2,252 | $383 | 11 | 1,351 | 1,802 | $319 | $702 | 30 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 31 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 32 |
| 2 | 244 | 4 | 326 | 4 | 489 | 6 | 489 | 12 | 1,466 | 2,607 | $382 | 12 | 1,955 | 1,955 | $377 | $758 | 33 |
| 2 | 864 | 4 | 1,152 | 4 | 1,728 | 6 | 1,728 | 43 | 5,183 | 9,215 | $1,349 | 43 | 6,911 | 6,911 | $1,331 | $2,681 | 34 |
| 2 | 1,210 | 4 | 1,613 | 4 | 2,420 | 6 | 2,420 | 60 | 7,259 | 12,904 | $1,889 | 60 | 9,678 | 9,678 | $1,864 | $3,754 | 35 |
| 2 | 386 | 4 | 514 | 4 | 771 | 6 | 771 | 19 | 2,314 | 4,114 | $602 | 19 | 3,085 | 3,085 | $594 | $1,197 | 36 |
| 8 | 7 | 6 | 4 | 0.5 | 0 | 0.5 | 0 | 0 | 64 | 33 | $8 | 0 | 2 | 1 | $1 | $9 | 37 |
| 8 | 18 | 6 | 9 | 0.5 | 1 | 0.5 | 1 | 0 | 161 | 84 | $19 | 0 | 4 | 3 | $3 | $21 | 38 |
| 8 | 18 | 6 | 9 | 0.5 | 1 | 0.5 | 1 | 0 | 161 | 84 | $19 | 0 | 4 | 3 | $3 | $21 | 39 |
| 8 | 18 | 6 | 9 | 0.5 | 1 | 0.5 | 1 | 0 | 161 | 84 | $19 | 0 | 4 | 3 | $3 | $21 | 40 |
| 8 | 7 | 6 | 4 | 0.5 | 0 | 0.5 | 0 | 0 | 64 | 33 | $8 | 0 | 2 | 1 | $1 | $9 | 41 |
| 8 | 18 | 6 | 9 | 0.5 | 1 | 0.5 | 1 | 0 | 161 | 84 | $19 | 0 | 4 | 3 | $3 | $21 | 42 |
| 8 | 7 | 6 | 4 | 0.5 | 0 | 0.5 | 0 | 0 | 64 | 33 | $8 | 0 | 2 | 1 | $1 | $9 | 43 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 44 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 45 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 46 |
| 2 | 439 | 4 | 586 | 4 | 879 | 6 | 879 | 22 | 2,636 | 4,687 | $686 | 22 | 3,515 | 3,515 | $677 | $1,363 | 47 |
| 2 | 449 | 4 | 599 | 4 | 899 | 6 | 899 | 22 | 2,696 | 4,793 | $702 | 22 | 3,595 | 3,595 | $693 | $1,394 | 48 |
| 12 | 537 | 8 | 239 | 12 | 537 | 8 | 239 | 9 | 4,297 | 1,910 | $481 | 4 | 2,148 | 955 | $245 | $726 | 49 |
| 4 | 771 | 10 | 1,286 | 4 | 771 | 10 | 1,286 | 39 | 9,256 | 10,285 | $1,642 | 19 | 3,085 | 5,142 | $743 | $2,386 | 50 |
| 8 | 18 | 6 | 9 | 0.5 | 1 | 0.5 | 1 | 0 | 161 | 84 | $19 | 0 | 4 | 3 | $3 | $21 | 51 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 52 |
| 12 | 300 | 8 | 133 | 12 | 300 | 8 | 133 | 5 | 2,399 | 1,066 | $268 | 2 | 1,199 | 533 | $137 | $405 | 53 |
| 12 | 420 | 8 | 187 | 12 | 420 | 8 | 187 | 7 | 3,358 | 1,493 | $376 | 3 | 1,679 | 746 | $191 | $567 | 54 |
| 12 | 420 | 8 | 187 | 12 | 420 | 8 | 187 | 7 | 3,358 | 1,493 | $376 | 3 | 1,679 | 746 | $191 | $567 | 55 |
| 12 | 420 | 8 | 187 | 12 | 420 | 8 | 187 | 7 | 3,358 | 1,493 | $376 | 3 | 1,679 | 746 | $191 | $567 | 56 |
| 12 | 806 | 8 | 358 | 12 | 806 | 8 | 358 | 13 | 6,445 | 2,865 | $721 | 7 | 3,223 | 1,432 | $367 | $1,089 | 57 |
| 12 | 403 | 8 | 179 | 12 | 403 | 8 | 179 | 7 | 3,223 | 1,432 | $361 | 3 | 1,611 | 716 | $184 | $544 | 58 |
| 12 | 403 | 8 | 179 | 12 | 403 | 8 | 179 | 7 | 3,223 | 1,432 | $361 | 3 | 1,611 | 716 | $184 | $544 | 59 |
| 8 | 5 | 6 | 3 | 0.5 | 0 | 0.5 | 0 | 0 | 48 | 25 | $6 | 0 | 1 | 1 | $1 | $6 | 60 |
| 8 | 27 | 6 | 13 | 0.5 | 2 | 0.5 | 1 | 1 | 242 | 125 | $28 | 0 | 7 | 4 | $4 | $32 | 61 |
| 8 | 9 | 6 | 4 | 0.5 | 1 | 0.5 | 0 | 0 | 81 | 42 | $9 | 0 | 2 | 1 | $1 | $11 | 62 |
| 8 | 36 | 6 | 18 | 0.5 | 2 | 0.5 | 1 | 1 | 322 | 167 | $38 | 0 | 9 | 6 | $5 | $43 | 63 |
| 8 | 36 | 6 | 18 | 0.5 | 2 | 0.5 | 1 | 1 | 322 | 167 | $38 | 0 | 9 | 6 | $5 | $43 | 64 |
| 3 | 1,686 | 8 | 2,997 | 4 | 2,247 | 10 | 3,746 | 94 | 11,237 | 20,976 | $2,997 | 56 | 8,990 | 14,983 | $2,166 | $5,163 | 65 |
| 8 | 5 | 6 | 3 | 0.5 | 0 | 0.5 | 0 | 0 | 48 | 25 | $6 | 0 | 1 | 1 | $1 | $6 | 66 |
| 8 | 76 | 6 | 38 | 0 | 0 | 0 | 0 | 2 | 761 | 355 | $89 | 0 | 0 | 0 | $0 | $89 | 67 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 68 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 69 |
| 12 | 49 | 8 | 22 | 12 | 49 | 8 | 22 | 1 | 394 | 175 | $44 | 0 | 197 | 88 | $22 | $67 | 70 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 71 |
| 4 | 3 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 48 | 24 | $6 | 0 | 0 | 0 | $0 | $6 | 72 |
| 12 | 420 | 8 | 187 | 12 | 420 | 8 | 187 | 7 | 3,358 | 1,493 | $376 | 3 | 1,679 | 746 | $191 | $567 | 73 |
| 12 | 739 | 8 | 328 | 12 | 739 | 8 | 328 | 12 | 5,908 | 2,626 | $661 | 6 | 2,954 | 1,313 | $337 | $998 | 74 |
| 12 | 2,012 | 8 | 894 | 12 | 2,012 | 8 | 894 | 34 | 16,092 | 7,152 | $1,801 | 17 | 8,046 | 3,576 | $917 | $2,718 | 75 |

3

| HVAC Item | HVAC Airside Equipment - General Information: Design/Site Designatio | Equip. Type | Field Data/Reference/(Location) | Area Served | Cooling Equipment Field Data/Reference/(Location) | Total Connected Load (kW) | Winter Demand kW/month | Interme Demar kW/mor |
|---|---|---|---|---|---|---|---|---|
| 76 | - | AHU-MCA | Trane(above 1B416 - offices) | 1B500 area | Plant Chilled Water @ 55 degrees F | 5.6 | 4.2 | |
| 77 | - | Recirc AC | Liebert(OA-413) | OA413 | Liebert(Outside on grade) | 10.8 | 5.4 | |
| 78 | - | Recirc AC | Liebert(OA-413) | OA413 | Liebert(Outside on grade) | 10.8 | 2.7 | |
| 79 | - | UH | unknown(Stairway #7) | Stairway #7 | N/A | 0.04 | 0.028 | 0.0 |
| 80 | - | UH | unknown(Stairway #11) | Stairway #11 | N/A | 0.02 | 0.017 | 0.0 |
| 81 | C-4 | Convector | unknown(Near Elevator #7 - First floor) | Hallway - Elev. #7 | N/A | 0.00 | 0.0 | |
| 82 | FC-1(11) | FC | unknown(1B405 - Library) | Library | Plant Chilled Water @ 55 degrees F | 0.14 | 0.1 | |
| 83 | - | Fin-tube | unknown(360 ft of 1B400 & 500 Areas) | various | N/A | 0.00 | 0.0 | |
| 84 | - | AHU | Trane(above 1B109 - Computer Area) | Mezz Computer Area | Trane(Outside on grade) | 12.1 | 6.0 | |
| 85 | - | Recirc AC | Liebert(above 1B109 - Computer Area) | Mezz Computer Area | Liebert(Outside on grade) | 10.8 | 5.4 | |
| 86 | CUH-1(2) | CUH | unknown(Main Lobby Entrance Area) | Mezz entrance way | N/A | 0.02 | 0.02 | 0 |
| 87 | AHU-1 | AHU-MCA | unknown(above Main Lobby) | Mezz Lobby Area | Plant Chilled Water @ 55 degrees F | 3.4 | 2.5 | |
| 88 | - | AHU-MCA | unknown(1B120 on floor) | Build Mgr office/Mezz | Plant Chilled Water @ 55 degrees F | 0.2 | 0.2 | |
| 89 | - | AHU | McQuay LSL(Auditorium M-Area) | Auditorium | McQuay AHR(Common - out on grade) | 27.0 | 6.8 | |
| 90 | - | AHU | McQuay LSL(Auditorium M-Area) | Auditorium | McQuay AHR(Common - out on grade) | 27.0 | 6.8 | |
| 91 | AC-1 | AHU | unknown(MR - 1aB138/Mezz.) | 1aB138 Mezz Area | Compressor in 1B123 & tower on roof | 18.7 | 4.7 | |
| 92 | FC-1(5) | FC | unknown(1aB324/Mezz.) | 1aB138 Mezz Area | Plant Chilled Water @ 55 degrees F | 0.07 | 0.1 | |
| 93 | - | Fin-tube | unknown(250 ft of 1aB100 Areas) | 1aB100 Mezz Area | N/A | 0.00 | 0.0 | |
| 94 | AC-2 | AHU | unknown(MR - 21 South 2C/D100 Area) | 2D110 offices | Compressor in MR-21 & tower on roof | 18.7 | 4.7 | |
| 95 | - | Recirc AC | Datac(2D106/Computer room) | 2D106 | Liebert Unit in 2D106 & tower on roof | 6.7 | 3.4 | |
| 96 | AHU-2-1 | AHU-MCA | Trane C.C (MR - 21-A South 2C/D100 Area | 2C/D100 offices/corridors | Plant Chilled Water @ 55 degrees F | 9.7 | 7.3 | |
| 97 | AC-3 | AHU | unknown(MR - 22 North 2C/D100 Area) | 2D130 electronics lab | Compressor in MR-21 & tower on roof | 28.2 | 7.1 | |
| 98 | AHU-2-2 | AHU-MCA | Trane C.C (MR - 22-A North 2C/D100 Area | 2C/D100 offices/corridors | Plant Chilled Water @ 55 degrees F | 7.8 | 5.9 | |
| 99 | - | AHU | Cargoaire(located on roof) | 2D140 Dryroom | Cargo Packaged AHU/AC cond. on roof | 44.5 | 22.3 | |
| 100 | - | AHU | unknown(MR-22 North 2C/D100 Area) | 2D204 lab area | Packaged Unit in MR-22 & tower on roof | 29.7 | 7.4 | |
| 101 | FC-1(78) | FC | unknown(78 in 2C/D100 area) | 2C/D100 perimeter areas | Plant Chilled Water @ 55 degrees F | 1.0 | 0.7 | |
| 102 | C-4 | Convector | unknown(Near Elevator #1 - Second floor) | Hallway - Elev. #1 | N/A | 0.00 | 0.0 | |
| 103 | - | AHU-MCA | Carrier 39LV(MR-23 East 2C/D200 Area) | 2D210 lab area | Compressor in MR-23 & condenser on r | 20.5 | 5.1 | |
| 104 | AHU-2-3 | AHU-MCA | Trane C.C (MR-23 East 2C/D200 Area) | 2C/D200/300 offices/corridor | Plant Chilled Water @ 55 degrees F | 14.9 | 11.2 | |
| 105 | FC-1(35) | FC | unknown(35 in 2C/D200 area) | 2C/D200 perimeter areas | Plant Chilled Water @ 55 degrees F | 0.4 | 0.3 | |
| 106 | AC-14 | AHU | unknown(MR - 23 East 2C/D200 Area) | 2D306 lab area | Compressor in MR-23 & tower on roof | 38.7 | 19.4 | |
| 107 | - | AHU | unknown(2D310 Cleanroom) | 2D310 Cleanroom | Pack. Carrier Air Cooled Chiller on roof | 22.4 | 11.2 | |
| 108 | - | AHU | Trane SWUB(2C325) | 2C325 | Packaged Unit in 2C325 & tower on roof | 9.8 | 2.4 | |
| 109 | - | AHU | Chrysler(2D330) | 2D330 area | Compressor in 2D330 & cond. on roof | 25.0 | 6.2 | |
| 110 | - | Recirc. AC | Liebert(2D335/Computer room) | 2D335 | Liebert Unit in 2D332 & tower on roof | 6.7 | 3.4 | |
| 111 | - | AC | Hideaway Pkg Unit(2D337) | 2D337 | Packaged Unit in 2D337 & tower on roof | 2.6 | 0.7 | |
| 112 | AHU-2-4 | AHU-MCA | Trane C.C (MR-24 East 2C/D300 Area) | 2C/D300 offices/corridors | Plant Chilled Water @ 55 degrees F | 7.8 | 5.9 | |
| 113 | FC-1(83) | FC | unknown(83 in 2C/D300 area) | 2C/D300 perimeter areas | Plant Chilled Water @ 55 degrees F | 1.0 | 0.8 | |
| 114 | AHU-2-4A | AHU-MCA | Trane C.C (MR-24 East 2C/D300 Area) | 2C/D400 offices/corridors | Plant Chilled Water @ 55 degrees F | 4.8 | 3.6 | |
| 115 | - | Recirc. AC | Datac(2C405/Computer room) | 2C405 | Datac Unit in 2C405 & tower on roof | 6.3 | 3.2 | |
| 116 | - | Recirc. AC | Datac(2C407/Computer room) | 2C407 | Datac Unit in 2C407 & tower on roof | 6.3 | 3.2 | |
| 117 | FC-1(41) | FC | unknown(41 in 2C/D400 area) | 2C/D400 perimeter areas | Plant Chilled Water @ 55 degrees F | 0.5 | 0.4 | |
| 118 | AHU-2-5 | AHU-MCA | Trane C.C.(MR-25 South 2C/D400 Area) | 2C/D400 offices/corridors | PCW @ 55F-Comp. in MR25/tower on r | 4.8 | 3.6 | |
| 119 | AHU-2-5A | AHU-MCA | Trane C.C.(MR-25 South 2C/D400 Area) | 2C/D400/500 offices/corridor | Plant Chilled Water @ 55 degrees F | 2.6 | 2.0 | |
| 120 | FC-1(19) | FC | unknown(19 in 2C/D500 area) | 2C/D500 perimeter areas | Plant Chilled Water @ 55 degrees F | 0.2 | 0.2 | |
| 121 | C-5 | Convector | unknown(Near Elevator #7 - Second floor) | Hallway - Elev. #7 | N/A | 0.00 | 0.0 | |
| 122 | AHU-3-1 | AHU-MCA | Trane C.C (MR-31 South 3C/D100 Area) | 3C/D100 offices/corridors | Plant Chilled Water @ 55 degrees F | 7.1 | 5.3 | |
| 123 | AHU-3-1A | AHU-MCA | Trane C.C (MR-31 South 3C/D100 Area) | 3C/D100 offices/corridors | Plant Chilled Water @ 55 degrees F | 4.8 | 3.6 | |
| 124 | - | AHU | Copeland WZW(3D114) | 3D114 area | Compressor in 3D114 & tower on roof | 14.9 | 3.7 | |
| 125 | AHU-3-2 | AHU-MCA | Trane C.C.(MR-32 North 3C/D100 Area) | 3C/D100 offices/corridors | Plant Chilled Water @ 55 degrees F | 7.5 | 5.6 | |
| 126 | AHU-3-2A | AHU-MCA | Trane C.C (MR-32 North 3C/D100 Area) | 3C/D100/200 offices/corridor | Plant Chilled Water @ 55 degrees F | 6.7 | 5.0 | |
| 127 | - | Recirc. AC | Trane RAVC(3C141/Computer room) | 3C141 | Trane Unit in 3C141 & condenser on roo | 9.3 | 2.3 | |
| 128 | - | Recirc. AC | Liebert(3C143/Computer room) | 3C143 | Liebert Unit in 2C407 & tower on roof | 8.6 | 4.3 | |
| 129 | FC-1(95) | FC | unknown(95 in 3C/D100 area) | 3C/D100 perimeter areas | Plant Chilled Water @ 55 degrees F | 1.2 | 0.9 | |
| 130 | C-5 | Convector | unknown(Near Elevator #1 - Third floor) | Hallway - Elev. #1 | N/A | 0.00 | 0.0 | |
| 131 | - | (2)AHU | York(MR - 33 East 3C/D200 Area) | 3D306-3C321 lab area | York Comp. in MR-33 & condenser on r | 56.4 | 14.1 | |
| 132 | - | FC's(?) | unknown(Rooms 3D314 - 3C321) | 3D314 - 3C321 lab area | Trane Chiller in MR23 & condenser on r | 16.0 | 4.0 | |
| 133 | AHU-3-3 | AHU-MCA | Trane C.C.(MR-33 East 3C/D200/300 Area) | 3C/D200/300 offices/corridor | Plant Chilled Water @ 55 degrees F | 14.9 | 11.2 | |
| 134 | FC-1(35) | FC | unknown(35 in 3C/D200 area) | 3C/D200 perimeter areas | Plant Chilled Water @ 55 degrees F | 0.4 | 0.3 | |
| 135 | - | AHU | Climatrol(MR-34 South 3C/D300 Area) | 3D330 Cleanroom | Climatrol Chiller in MR34 & cond. on roo | 73.6 | 36.8 | |
| 136 | AHU-3-4 | AHU-MCA | Trane C.C (MR-34 South 3C/D300/400 Are | 3C/D300/400 offices/corridor | Plant Chilled Water @ 55 degrees F | 7.5 | 5.6 | |
| 137 | FC-1(83) | FC | unknown(83 in 3C/D300 area) | 3C/D300 perimeter areas | Plant Chilled Water @ 55 degrees F | 1.0 | 0.8 | |
| 138 | - | Recirc. AC | Liebert(3D402/Computer room) | 3D402 | Liebert(located on roof) | 10.8 | 5.4 | |
| 139 | - | Recirc. AC | Liebert(3D402/Computer room) | 3D402 | Liebert(located on roof) | 10.8 | 2.7 | |
| 140 | - | Recirc. AC | Liebert(3D404/Computer room) | 3D404 | Liebert(located on roof) | 16.6 | 8.3 | |
| 141 | - | Recirc. AC | Liebert(3D406/Computer room) | 3D406 | Liebert(located on roof) | 10.8 | 5.4 | |
| 142 | - | Recirc. AC | Liebert(3D406/Computer room) | 3D406 | Liebert(located on roof) | 10.8 | 2.7 | |
| 143 | - | Recirc. AC | Liebert(3D409/Computer room) | 3D409 | Liebert(located on roof) | 14.9 | 7.5 | 1 |
| 144 | - | Recirc. AC | Liebert(3D410/Computer room) | 3D410 | Liebert(located on roof) | 16.6 | 8.3 | |
| 145 | - | Recirc. AC | Liebert(3D412/Computer room) | 3D412 | Liebert(located on roof) | 23.1 | 11.6 | 1 |
| 146 | - | Recirc. AC | Liebert(3D412/Computer room) | 3D412 | Liebert(located on roof) | 23.1 | 5.8 | |
| 147 | FC-1(40) | FC | unknown(40 in 3C/D400 area) | 3C/D400 perimeter areas | Plant Chilled Water @ 55 degrees F | 0.5 | 0.4 | |
| 148 | AHU-3-5 | AHU-MCA | Trane C.C (MR-35 South 3C/D400 Area) | 3C/D400 offices/corridors | Plant Chilled Water @ 55 degrees F | 7.8 | 5.9 | |
| 149 | AHU-3-5A | AHU-MCA | Trane C.C (MR-35 South 3C/D400 Area) | 3C/D400/500 offices/corridor | Plant Chilled Water @ 55 degrees F | 2.1 | 1.5 | |
| 150 | FC-1(19) | FC | unknown(19 in 3C/D500 area) | 3C/D500 perimeter areas | Plant Chilled Water @ 55 degrees F | 0.2 | 0.2 | |
| 151 | C-5 | Convector | unknown(Near Elevator #7 - Third floor) | Hallway - Elev. #7 | N/A | 0.00 | 0.0 | |

# FT. MONMOUTH, DEPARTMENT OF THE ARMY
# BUILDING 2700 ELECTRIC MODEL - ALL FLOORS & BUILDING 2706 HVAC EQUIPMENT

**TABLE 5.6.2.2**

| | Cooling Equipment Field Data/Reference/(Location) | Total Connected Load (kW) | Winter Demand kW/month | Intermed. Demand kW/month | Summer Demand kW/month | Winter Billing Months Off-Peak hrs/day | Winter Billing Months Off-Peak kWh/Mo | Winter Billing Months On-Peak hrs/day | Winter Billing Months On-Peak kWh/Mo | Intermediate Billing Months Off-Peak hrs/day | Intermediate Billing Months Off-Peak kWh/Mo | Intermediate Billing Months On-Peak hrs/day | Intermediate Billing Months On-Peak kWh/Mo | Summer Billing Months Off-Peak hrs/day | Summer Billing Months Off-Peak kWh/Mo | Summer Billing Months On-Peak hrs/day | Summer Billing Months On-Peak kWh/Mo | Non-Su Demand kW/Yr. | Non-Su Off-Peak KWH/Yr. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Plant Chilled Water @ 55 degrees F | 5.6 | 4.2 | 4.2 | 4.2 | 12 | 2,012 | 8 | 894 | 12 | 2,012 | 8 | 894 | 12 | 2,012 | 8 | 894 | 34 | 16,092 |
| | Liebert(Outside on grade) | 10.8 | 5.4 | 8.1 | 8.1 | 2 | 649 | 6 | 1,298 | 3 | 974 | 8 | 1,731 | 4 | 1,298 | 10 | 2,163 | 54 | 6,490 |
| | Liebert(Outside on grade) | 10.8 | 2.7 | 5.4 | 5.4 | 1 | 325 | 4 | 865 | 2 | 649 | 4 | 865 | 4 | 1,298 | 6 | 1,298 | 32 | 3,894 |
| | N/A | 0.04 | 0.028 | 0.014 | 0.0 | 10 | 11 | 8 | 6 | 8 | 9 | 6 | 4 | 0.5 | 1 | 0.5 | 0 | 0 | 81 |
| | N/A | 0.02 | 0.017 | 0.008 | 0.0 | 10 | 7 | 8 | 4 | 8 | 5 | 6 | 3 | 0.5 | 0 | 0.5 | 0 | 0 | 48 |
| | N/A | 0.00 | 0.0 | 0.0 | 0.0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Plant Chilled Water @ 55 degrees F | 0.14 | 0.1 | 0.1 | 0.1 | 12 | 49 | 8 | 22 | 12 | 49 | 8 | 22 | 12 | 49 | 8 | 22 | 1 | 394 |
| | N/A | 0.00 | 0.0 | 0.0 | 0.0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Trane(Outside on grade) | 12.1 | 6.0 | 9.1 | 9.1 | 2 | 724 | 6 | 1,449 | 3 | 1,086 | 8 | 1,931 | 4 | 1,449 | 10 | 2,414 | 60 | 7,243 |
| | Liebert(Outside on grade) | 10.8 | 5.4 | 8.1 | 8.1 | 2 | 649 | 6 | 1,298 | 3 | 974 | 8 | 1,731 | 4 | 1,298 | 10 | 2,163 | 54 | 6,490 |
| | N/A | 0.02 | 0.02 | 0.02 | 0.02 | 12 | 9 | 8 | 4 | 8 | 6 | 6 | 3 | 0 | 0 | 0 | 0 | 0 | 60 |
| | Plant Chilled Water @ 55 degrees F | 3.4 | 2.5 | 2.5 | 2.5 | 12 | 1,209 | 8 | 537 | 12 | 1,209 | 8 | 537 | 12 | 1,209 | 8 | 537 | 20 | 9,668 |
| z | Plant Chilled Water @ 55 degrees F | 0.2 | 0.2 | 0.2 | 0.2 | 12 | 86 | 8 | 38 | 12 | 86 | 8 | 38 | 12 | 86 | 8 | 38 | 1 | 689 |
| | McQuay AHR(Common - out on grade) | 27.0 | 6.8 | 13.5 | 20.3 | 2 | 1,621 | 4 | 2,162 | 3 | 2,432 | 6 | 3,243 | 4 | 3,243 | 8 | 4,324 | 81 | 16,214 |
| | McQuay AHR(Common - out on grade) | 27.0 | 6.8 | 13.5 | 20.3 | 2 | 1,621 | 4 | 2,162 | 3 | 2,432 | 6 | 3,243 | 4 | 3,243 | 8 | 4,324 | 81 | 16,214 |
| | Compressor in 1B123 & tower on roof | 18.7 | 4.7 | 9.3 | 14.0 | 1 | 560 | 4 | 1,492 | 2 | 1,119 | 4 | 1,492 | 4 | 2,238 | 6 | 2,238 | 56 | 6,714 |
| | Plant Chilled Water @ 55 degrees F | 0.07 | 0.1 | 0.1 | 0.1 | 12 | 27 | 8 | 12 | 12 | 27 | 8 | 12 | 12 | 27 | 8 | 12 | 0 | 215 |
| | N/A | 0.00 | 0.0 | 0.0 | 0.0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Compressor in MR-21 & tower on roof | 18.7 | 4.7 | 9.3 | 14.0 | 1 | 560 | 4 | 1,492 | 2 | 1,119 | 4 | 1,492 | 4 | 2,238 | 6 | 2,238 | 56 | 6,714 |
| | Liebert Unit in 2D106 & tower on roof | 6.7 | 3.4 | 5.0 | 5.0 | 2 | 403 | 6 | 806 | 3 | 604 | 8 | 1,074 | 4 | 806 | 10 | 1,343 | 34 | 4,028 |
| iors | Plant Chilled Water @ 55 degrees F | 9.7 | 7.3 | 7.3 | 7.3 | 4 | 1,164 | 8 | 1,552 | 4 | 1,164 | 8 | 1,552 | 4 | 1,164 | 8 | 1,552 | 58 | 9,310 |
| | Compressor in MR-21 & tower on roof | 28.2 | 7.1 | 14.1 | 21.2 | 1 | 846 | 4 | 2,257 | 2 | 1,693 | 4 | 2,257 | 4 | 3,386 | 6 | 3,386 | 85 | 10,157 |
| iors | Plant Chilled Water @ 55 degrees F | 7.8 | 5.9 | 5.9 | 5.9 | 12 | 2,820 | 8 | 1,253 | 12 | 2,820 | 8 | 1,253 | 12 | 2,820 | 8 | 1,253 | 47 | 22,559 |
| | Cargo Packaged AHU/AC cond. on roof | 44.5 | 22.3 | 33.4 | 33.4 | 2 | 2,670 | 6 | 5,340 | 3 | 4,005 | 8 | 7,120 | 4 | 5,340 | 10 | 8,900 | 223 | 26,701 |
| | Packaged Unit in MR-22 & tower on roof | 29.7 | 7.4 | 14.9 | 22.3 | 1 | 892 | 4 | 2,380 | 2 | 1,785 | 4 | 2,380 | 4 | 3,569 | 6 | 3,569 | 89 | 10,708 |
| eas | Plant Chilled Water @ 55 degrees F | 1.0 | 0.7 | 0.7 | 0.7 | 12 | 349 | 8 | 155 | 12 | 349 | 8 | 155 | 12 | 349 | 8 | 155 | 6 | 2,793 |
| | N/A | 0.00 | 0.0 | 0.0 | 0.0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Compressor in MR-23 & condenser on r | 20.5 | 5.1 | 10.3 | 15.4 | 1 | 616 | 4 | 1,643 | 2 | 1,232 | 4 | 1,643 | 4 | 2,464 | 6 | 2,464 | 62 | 7,393 |
| comdor | Plant Chilled Water @ 55 degrees F | 14.9 | 11.2 | 11.2 | 11.2 | 12 | 5,371 | 8 | 2,387 | 12 | 5,371 | 8 | 2,387 | 12 | 5,371 | 8 | 2,387 | 90 | 42,970 |
| eas | Plant Chilled Water @ 55 degrees F | 0.4 | 0.3 | 0.3 | 0.3 | 12 | 157 | 8 | 70 | 12 | 157 | 8 | 70 | 12 | 157 | 8 | 70 | 3 | 1,253 |
| | Compressor in MR-23 & tower on roof | 38.7 | 19.4 | 29.0 | 29.0 | 2 | 2,322 | 6 | 4,645 | 3 | 3,483 | 8 | 6,193 | 4 | 4,645 | 10 | 7,741 | 194 | 23,223 |
| | Pack. Carrier Air Cooled Chiller on roof | 22.4 | 11.2 | 16.8 | 16.8 | 2 | 1,347 | 6 | 2,693 | 3 | 2,020 | 8 | 3,591 | 4 | 2,693 | 10 | 4,489 | 112 | 13,466 |
| | Packaged Unit in 2C325 & tower on roof | 9.8 | 2.4 | 4.9 | 7.3 | 1 | 293 | 4 | 781 | 2 | 586 | 4 | 781 | 4 | 1,171 | 6 | 1,171 | 29 | 3,514 |
| | Compressor in 2D330 & cond. on roof | 25.0 | 6.2 | 12.5 | 18.7 | 1 | 749 | 4 | 1,998 | 2 | 1,499 | 4 | 1,998 | 4 | 2,997 | 6 | 2,997 | 75 | 8,992 |
| | Liebert Unit in 2D332 & tower on roof | 6.7 | 3.4 | 5.0 | 5.0 | 2 | 403 | 6 | 806 | 3 | 604 | 8 | 1,074 | 4 | 806 | 10 | 1,343 | 34 | 4,028 |
| | Packaged Unit in 2D337 & tower on roof | 2.6 | 0.7 | 1.3 | 2.0 | 1 | 78 | 4 | 208 | 2 | 156 | 4 | 208 | 4 | 313 | 6 | 313 | 8 | 938 |
| iors | Plant Chilled Water @ 55 degrees F | 7.8 | 5.9 | 5.9 | 5.9 | 4 | 940 | 8 | 1,253 | 4 | 940 | 8 | 1,253 | 4 | 940 | 8 | 1,253 | 47 | 7,520 |
| eas | Plant Chilled Water @ 55 degrees F | 1.0 | 0.8 | 0.8 | 0.8 | 12 | 372 | 8 | 165 | 12 | 372 | 8 | 165 | 12 | 372 | 8 | 165 | 6 | 2,972 |
| iors | Plant Chilled Water @ 55 degrees F | 4.8 | 3.6 | 3.6 | 3.6 | 4 | 582 | 8 | 776 | 4 | 582 | 8 | 776 | 4 | 582 | 8 | 776 | 29 | 4,655 |
| | Datac Unit in 2C405 & tower on roof | 6.3 | 3.2 | 4.8 | 4.8 | 2 | 380 | 6 | 761 | 3 | 571 | 8 | 1,015 | 4 | 761 | 10 | 1,268 | 32 | 3,805 |
| | Datac Unit in 2C407 & tower on roof | 6.3 | 3.2 | 4.8 | 4.8 | 2 | 380 | 6 | 761 | 3 | 571 | 8 | 1,015 | 4 | 761 | 10 | 1,268 | 32 | 3,805 |
| eas | Plant Chilled Water @ 55 degrees F | 0.5 | 0.4 | 0.4 | 0.4 | 12 | 184 | 8 | 82 | 12 | 184 | 8 | 82 | 12 | 184 | 8 | 82 | 3 | 1,468 |
| iors | PCW @ 55F-Comp. in MR25/tower on r | 4.8 | 3.6 | 3.6 | 3.6 | 12 | 1,746 | 8 | 776 | 12 | 1,746 | 8 | 776 | 12 | 1,746 | 8 | 776 | 29 | 13,965 |
| comdor | Plant Chilled Water @ 55 degrees F | 2.6 | 2.0 | 2.0 | 2.0 | 12 | 940 | 8 | 418 | 12 | 940 | 8 | 418 | 12 | 940 | 8 | 418 | 16 | 7,520 |
| eas | Plant Chilled Water @ 55 degrees F | 0.2 | 0.2 | 0.2 | 0.2 | 12 | 85 | 8 | 38 | 12 | 85 | 8 | 38 | 12 | 85 | 8 | 38 | 1 | 680 |
| | N/A | 0.00 | 0.0 | 0.0 | 0.0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| iors | Plant Chilled Water @ 55 degrees F | 7.1 | 5.3 | 5.3 | 5.3 | 12 | 2,551 | 8 | 1,134 | 12 | 2,551 | 8 | 1,134 | 12 | 2,551 | 8 | 1,134 | 43 | 20,411 |
| iors | Plant Chilled Water @ 55 degrees F | 4.8 | 3.6 | 3.6 | 3.6 | 12 | 1,746 | 8 | 776 | 12 | 1,746 | 8 | 776 | 12 | 1,746 | 8 | 776 | 29 | 13,965 |
| | Compressor in 3D114 & tower on roof | 14.9 | 3.7 | 7.4 | 11.2 | 1 | 446 | 4 | 1,190 | 2 | 892 | 4 | 1,190 | 4 | 1,785 | 6 | 1,785 | 45 | 5,354 |
| iors | Plant Chilled Water @ 55 degrees F | 7.5 | 5.6 | 5.6 | 5.6 | 12 | 2,686 | 8 | 1,194 | 12 | 2,686 | 8 | 1,194 | 12 | 2,686 | 8 | 1,194 | 45 | 21,485 |
| comdor | Plant Chilled Water @ 55 degrees F | 6.7 | 5.0 | 5.0 | 5.0 | 12 | 2,417 | 8 | 1,074 | 12 | 2,417 | 8 | 1,074 | 12 | 2,417 | 8 | 1,074 | 40 | 19,336 |
| | Trane Unit in 3C141 & condenser on roo | 9.3 | 2.3 | 4.7 | 7.0 | 1 | 280 | 4 | 746 | 2 | 560 | 4 | 746 | 4 | 1,119 | 6 | 1,119 | 28 | 3,357 |
| | Liebert Unit in 2C407 & tower on roof | 8.6 | 4.3 | 6.4 | 6.4 | 2 | 515 | 6 | 1,029 | 3 | 772 | 8 | 1,373 | 4 | 1,029 | 10 | 1,716 | 43 | 5,147 |
| eas | Plant Chilled Water @ 55 degrees F | 1.2 | 0.9 | 0.9 | 0.9 | 12 | 425 | 8 | 189 | 12 | 425 | 8 | 189 | 12 | 425 | 8 | 189 | 7 | 3,402 |
| | N/A | 0.00 | 0.0 | 0.0 | 0.0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| a | York Comp. in MR-33 & condenser on r | 56.4 | 14.1 | 28.2 | 42.3 | 1 | 1,692 | 4 | 4,513 | 2 | 3,385 | 4 | 4,513 | 4 | 6,769 | 6 | 6,769 | 169 | 20,307 |
| ea | Trane Chiller in MR23 & condenser on r | 16.0 | 4.0 | 8.0 | 12.0 | 1 | 480 | 4 | 1,281 | 2 | 961 | 4 | 1,281 | 4 | 1,922 | 6 | 1,922 | 48 | 5,765 |
| comdor | Plant Chilled Water @ 55 degrees F | 14.9 | 11.2 | 11.2 | 11.2 | 4 | 1,790 | 8 | 2,387 | 4 | 1,790 | 8 | 2,387 | 4 | 1,790 | 8 | 2,387 | 90 | 14,323 |
| eas | Plant Chilled Water @ 55 degrees F | 0.4 | 0.3 | 0.3 | 0.3 | 12 | 157 | 8 | 70 | 12 | 157 | 8 | 70 | 12 | 157 | 8 | 70 | 3 | 1,253 |
| | Climatrol Chiller in MR34 & cond. on roo | 73.6 | 36.8 | 55.2 | 55.2 | 2 | 4,418 | 6 | 8,835 | 3 | 6,626 | 8 | 11,780 | 4 | 8,835 | 10 | 14,725 | 368 | 44,175 |
| comdor | Plant Chilled Water @ 55 degrees F | 7.5 | 5.6 | 5.6 | 5.6 | 4 | 895 | 8 | 1,194 | 4 | 895 | 8 | 1,194 | 4 | 895 | 8 | 1,194 | 45 | 7,162 |
| eas | Plant Chilled Water @ 55 degrees F | 1.0 | 0.8 | 0.8 | 0.8 | 12 | 372 | 8 | 165 | 12 | 372 | 8 | 165 | 12 | 372 | 8 | 165 | 6 | 2,972 |
| | Liebert(located on roof) | 10.8 | 5.4 | 8.1 | 8.1 | 2 | 649 | 6 | 1,298 | 3 | 974 | 8 | 1,731 | 4 | 1,298 | 10 | 2,163 | 54 | 6,490 |
| | Liebert(located on roof) | 10.8 | 2.7 | 5.4 | 8.1 | 1 | 325 | 4 | 865 | 2 | 649 | 4 | 865 | 4 | 1,298 | 6 | 1,298 | 32 | 3,894 |
| | Liebert(located on roof) | 16.6 | 8.3 | 12.4 | 12.4 | 2 | 996 | 6 | 1,992 | 3 | 1,494 | 8 | 2,656 | 4 | 1,992 | 10 | 3,320 | 83 | 9,959 |
| | Liebert(located on roof) | 10.8 | 5.4 | 8.1 | 8.1 | 2 | 649 | 6 | 1,298 | 3 | 974 | 8 | 1,731 | 4 | 1,298 | 10 | 2,163 | 54 | 6,490 |
| | Liebert(located on roof) | 10.8 | 2.7 | 5.4 | 8.1 | 1 | 325 | 4 | 865 | 2 | 649 | 4 | 865 | 4 | 1,298 | 6 | 1,298 | 32 | 3,894 |
| | Liebert(located on roof) | 14.9 | 7.5 | 11.2 | 11.2 | 2 | 895 | 6 | 1,790 | 3 | 1,343 | 8 | 2,387 | 4 | 1,790 | 10 | 2,984 | 75 | 8,952 |
| | Liebert(located on roof) | 16.6 | 8.3 | 12.4 | 12.4 | 2 | 996 | 6 | 1,992 | 3 | 1,494 | 8 | 2,656 | 4 | 1,992 | 10 | 3,320 | 83 | 9,959 |
| | Liebert(located on roof) | 23.1 | 11.6 | 17.3 | 17.3 | 2 | 1,388 | 6 | 2,775 | 3 | 2,081 | 8 | 3,700 | 4 | 2,775 | 10 | 4,625 | 116 | 13,876 |
| | Liebert(located on roof) | 23.1 | 5.8 | 11.6 | 17.3 | 1 | 694 | 4 | 1,850 | 2 | 1,388 | 4 | 1,850 | 4 | 2,775 | 6 | 2,775 | 69 | 8,325 |
| eas | Plant Chilled Water @ 55 degrees F | 0.5 | 0.4 | 0.4 | 0.4 | 12 | 179 | 8 | 80 | 12 | 179 | 8 | 80 | 12 | 179 | 8 | 80 | 3 | 1,432 |
| iors | Plant Chilled Water @ 55 degrees F | 7.8 | 5.9 | 5.9 | 5.9 | 4 | 940 | 8 | 1,253 | 4 | 940 | 8 | 1,253 | 4 | 940 | 8 | 1,253 | 47 | 7,520 |
| comdor | Plant Chilled Water @ 55 degrees F | 2.1 | 1.5 | 1.5 | 1.5 | 4 | 246 | 8 | 328 | 4 | 246 | 8 | 328 | 4 | 246 | 8 | 328 | 12 | 1,969 |
| eas | Plant Chilled Water @ 55 degrees F | 0.2 | 0.2 | 0.2 | 0.2 | 12 | 85 | 8 | 38 | 12 | 85 | 8 | 38 | 12 | 85 | 8 | 38 | 1 | 680 |
| | N/A | 0.00 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

②

## NT OF THE ARMY
## & BUILDING 2706 HVAC EQUIPMENT

| hs | Intermediate Billing Months | | | | Summer Billing Months | | | | Non-Summer | | | | Summer | | | | Annual | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 'eak | Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | | | | | | | | | | |
| kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | Demand kW/Yr. | Off-Peak KWH/Yr. | On-Peak KWH/Yr. | Cost $ | Demand kW/Yr. | Off-Peak KWH/Yr. | On-Peak KWH/Yr. | Cost $ | Cost $ | No. |
| 894 | 12 | 2,012 | 8 | 894 | 12 | 2,012 | 8 | 894 | 34 | 16,092 | 7,152 | $1,801 | 17 | 8,046 | 3,576 | $917 | $2,718 | 76 |
| 1,298 | 3 | 974 | 8 | 1,731 | 4 | 1,298 | 10 | 2,163 | 54 | 6,490 | 12,115 | $1,731 | 32 | 5,192 | 8,654 | $1,251 | $2,982 | 77 |
| 865 | 2 | 649 | 4 | 865 | 4 | 1,298 | 6 | 1,298 | 32 | 3,894 | 6,923 | $1,014 | 22 | 5,192 | 5,192 | $901 | $1,914 | 78 |
| 6 | 8 | 9 | 6 | 4 | 0.5 | 1 | 0.5 | 0 | 0 | 81 | 42 | $9 | 0 | 2 | 1 | $1 | $11 | 79 |
| 4 | 8 | 5 | 6 | 3 | 0.5 | 0 | 0.5 | 0 | 0 | 48 | 25 | $6 | 0 | 1 | 1 | $1 | $6 | 80 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 81 |
| 22 | 12 | 49 | 8 | 22 | 12 | 49 | 8 | 22 | 1 | 394 | 175 | $44 | 0 | 197 | 88 | $22 | $67 | 82 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 83 |
| 1,449 | 3 | 1,086 | 8 | 1,931 | 4 | 1,449 | 10 | 2,414 | 60 | 7,243 | 13,520 | $1,932 | 36 | 5,794 | 9,657 | $1,396 | $3,328 | 84 |
| 1,298 | 3 | 974 | 8 | 1,731 | 4 | 1,298 | 10 | 2,163 | 54 | 6,490 | 12,115 | $1,731 | 32 | 5,192 | 8,654 | $1,251 | $2,982 | 85 |
| 4 | 8 | 6 | 6 | 3 | 0 | 0 | 0 | 0 | 0 | 60 | 28 | $7 | 0 | 0 | 0 | $1 | $8 | 86 |
| 537 | 12 | 1,209 | 8 | 537 | 12 | 1,209 | 8 | 537 | 20 | 9,668 | 4,297 | $1,082 | 10 | 4,834 | 2,148 | $551 | $1,633 | 87 |
| 38 | 12 | 86 | 8 | 38 | 12 | 86 | 8 | 38 | 1 | 689 | 306 | $77 | 1 | 345 | 153 | $39 | $116 | 88 |
| 2,162 | 3 | 2,432 | 6 | 3,243 | 4 | 3,243 | 8 | 4,324 | 81 | 16,214 | 21,619 | $3,250 | 81 | 12,972 | 17,295 | $2,812 | $6,062 | 89 |
| 2,162 | 3 | 2,432 | 6 | 3,243 | 4 | 3,243 | 8 | 4,324 | 81 | 16,214 | 21,619 | $3,250 | 81 | 12,972 | 17,295 | $2,812 | $6,062 | 90 |
| 1,492 | 2 | 1,119 | 4 | 1,492 | 4 | 2,238 | 6 | 2,238 | 56 | 6,714 | 11,936 | $1,748 | 56 | 8,952 | 8,952 | $1,725 | $3,472 | 91 |
| 12 | 12 | 27 | 8 | 12 | 12 | 27 | 8 | 12 | 0 | 215 | 95 | $24 | 0 | 107 | 48 | $12 | $36 | 92 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 93 |
| 1,492 | 2 | 1,119 | 4 | 1,492 | 4 | 2,238 | 6 | 2,238 | 56 | 6,714 | 11,936 | $1,748 | 56 | 8,952 | 8,952 | $1,725 | $3,472 | 94 |
| 806 | 3 | 604 | 8 | 1,074 | 4 | 806 | 10 | 1,343 | 34 | 4,028 | 7,520 | $1,074 | 20 | 3,223 | 5,371 | $777 | $1,851 | 95 |
| 1,552 | 4 | 1,164 | 8 | 1,552 | 4 | 1,164 | 8 | 1,552 | 58 | 9,310 | 12,413 | $1,963 | 29 | 4,655 | 6,207 | $1,009 | $2,972 | 96 |
| 2,257 | 2 | 1,693 | 4 | 2,257 | 4 | 3,386 | 6 | 3,386 | 85 | 10,157 | 18,057 | $2,644 | 85 | 13,543 | 13,543 | $2,609 | $5,253 | 97 |
| 1,253 | 12 | 2,820 | 8 | 1,253 | 12 | 2,820 | 8 | 1,253 | 47 | 22,559 | 10,026 | $2,524 | 23 | 11,280 | 5,013 | $1,286 | $3,810 | 98 |
| 5,340 | 3 | 4,005 | 8 | 7,120 | 4 | 5,340 | 10 | 8,900 | 223 | 26,701 | 49,842 | $7,122 | 134 | 21,361 | 35,601 | $5,147 | $12,269 | 99 |
| 2,380 | 2 | 1,785 | 4 | 2,380 | 4 | 3,569 | 6 | 3,569 | 89 | 10,708 | 19,036 | $2,787 | 89 | 14,277 | 14,277 | $2,750 | $5,538 | 100 |
| 155 | 12 | 349 | 8 | 155 | 12 | 349 | 8 | 155 | 6 | 2,793 | 1,241 | $313 | 3 | 1,397 | 621 | $159 | $472 | 101 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 102 |
| 1,643 | 2 | 1,232 | 4 | 1,643 | 4 | 2,464 | 6 | 2,464 | 62 | 7,393 | 13,143 | $1,924 | 62 | 9,857 | 9,857 | $1,899 | $3,823 | 103 |
| 2,387 | 12 | 5,371 | 8 | 2,387 | 12 | 5,371 | 8 | 2,387 | 90 | 42,970 | 19,098 | $4,808 | 45 | 21,485 | 9,549 | $2,449 | $7,257 | 104 |
| 70 | 12 | 157 | 8 | 70 | 12 | 157 | 8 | 70 | 3 | 1,253 | 557 | $140 | 1 | 627 | 279 | $71 | $212 | 105 |
| 4,645 | 3 | 3,483 | 8 | 6,193 | 4 | 4,645 | 10 | 7,741 | 194 | 23,223 | 43,349 | $6,194 | 116 | 18,578 | 30,963 | $4,476 | $10,670 | 106 |
| 2,693 | 3 | 2,020 | 8 | 3,591 | 4 | 2,693 | 10 | 4,489 | 112 | 13,466 | 25,137 | $3,592 | 67 | 10,773 | 17,955 | $2,596 | $6,188 | 107 |
| 781 | 2 | 586 | 4 | 781 | 4 | 1,171 | 6 | 1,171 | 29 | 3,514 | 6,247 | $915 | 29 | 4,685 | 4,685 | $903 | $1,817 | 108 |
| 1,998 | 2 | 1,499 | 4 | 1,998 | 4 | 2,997 | 6 | 2,997 | 75 | 8,992 | 15,986 | $2,341 | 75 | 11,990 | 11,990 | $2,310 | $4,650 | 109 |
| 806 | 3 | 604 | 8 | 1,074 | 4 | 806 | 10 | 1,343 | 34 | 4,028 | 7,520 | $1,074 | 20 | 3,223 | 5,371 | $777 | $1,851 | 110 |
| 208 | 2 | 156 | 4 | 208 | 4 | 313 | 6 | 313 | 8 | 938 | 1,668 | $244 | 8 | 1,251 | 1,251 | $241 | $485 | 111 |
| 1,253 | 4 | 940 | 8 | 1,253 | 4 | 940 | 8 | 1,253 | 47 | 7,520 | 10,026 | $1,585 | 23 | 3,760 | 5,013 | $815 | $2,401 | 112 |
| 165 | 12 | 372 | 8 | 165 | 12 | 372 | 8 | 165 | 6 | 2,972 | 1,321 | $333 | 3 | 1,486 | 660 | $169 | $502 | 113 |
| 776 | 4 | 582 | 8 | 776 | 4 | 582 | 8 | 776 | 29 | 4,655 | 6,207 | $981 | 15 | 2,328 | 3,103 | $505 | $1,486 | 114 |
| 761 | 3 | 571 | 8 | 1,015 | 4 | 761 | 10 | 1,268 | 32 | 3,805 | 7,102 | $1,015 | 19 | 3,044 | 5,073 | $733 | $1,748 | 115 |
| 761 | 3 | 571 | 8 | 1,015 | 4 | 761 | 10 | 1,268 | 32 | 3,805 | 7,102 | $1,015 | 19 | 3,044 | 5,073 | $733 | $1,748 | 116 |
| 82 | 12 | 184 | 8 | 82 | 12 | 184 | 8 | 82 | 3 | 1,468 | 653 | $164 | 2 | 734 | 326 | $84 | $248 | 117 |
| 776 | 12 | 1,746 | 8 | 776 | 12 | 1,746 | 8 | 776 | 29 | 13,965 | 6,207 | $1,563 | 15 | 6,983 | 3,103 | $796 | $2,359 | 118 |
| 418 | 12 | 940 | 8 | 418 | 12 | 940 | 8 | 418 | 16 | 7,520 | 3,342 | $841 | 8 | 3,760 | 1,671 | $429 | $1,270 | 119 |
| 38 | 12 | 85 | 8 | 38 | 12 | 85 | 8 | 38 | 1 | 680 | 302 | $76 | 1 | 340 | 151 | $39 | $115 | 120 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 121 |
| 1,134 | 12 | 2,551 | 8 | 1,134 | 12 | 2,551 | 8 | 1,134 | 43 | 20,411 | 9,071 | $2,284 | 21 | 10,205 | 4,536 | $1,163 | $3,447 | 122 |
| 776 | 12 | 1,746 | 8 | 776 | 12 | 1,746 | 8 | 776 | 29 | 13,965 | 6,207 | $1,563 | 15 | 6,983 | 3,103 | $796 | $2,359 | 123 |
| 1,190 | 2 | 892 | 4 | 1,190 | 4 | 1,785 | 6 | 1,785 | 45 | 5,354 | 9,518 | $1,394 | 45 | 7,139 | 7,139 | $1,375 | $2,769 | 124 |
| 1,194 | 12 | 2,686 | 8 | 1,194 | 12 | 2,686 | 8 | 1,194 | 45 | 21,485 | 9,549 | $2,404 | 22 | 10,742 | 4,774 | $1,224 | $3,629 | 125 |
| 1,074 | 12 | 2,417 | 8 | 1,074 | 12 | 2,417 | 8 | 1,074 | 40 | 19,336 | 8,594 | $2,164 | 20 | 9,668 | 4,297 | $1,102 | $3,266 | 126 |
| 746 | 2 | 560 | 4 | 746 | 4 | 1,119 | 6 | 1,119 | 28 | 3,357 | 5,968 | $874 | 28 | 4,476 | 4,476 | $862 | $1,736 | 127 |
| 1,029 | 3 | 772 | 8 | 1,373 | 4 | 1,029 | 10 | 1,716 | 43 | 5,147 | 9,608 | $1,373 | 26 | 4,118 | 6,863 | $992 | $2,365 | 128 |
| 189 | 12 | 425 | 8 | 189 | 12 | 425 | 8 | 189 | 7 | 3,402 | 1,512 | $381 | 4 | 1,701 | 756 | $194 | $575 | 129 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 130 |
| 4,513 | 2 | 3,385 | 4 | 4,513 | 4 | 6,769 | 6 | 6,769 | 169 | 20,307 | 36,102 | $5,286 | 169 | 27,076 | 27,076 | $5,216 | $10,502 | 131 |
| 1,281 | 2 | 961 | 4 | 1,281 | 4 | 1,922 | 6 | 1,922 | 48 | 5,765 | 10,249 | $1,501 | 48 | 7,687 | 7,687 | $1,481 | $2,981 | 132 |
| 2,387 | 4 | 1,790 | 8 | 2,387 | 4 | 1,790 | 8 | 2,387 | 90 | 14,323 | 19,098 | $3,020 | 45 | 7,162 | 9,549 | $1,553 | $4,572 | 133 |
| 70 | 12 | 157 | 8 | 70 | 12 | 157 | 8 | 70 | 3 | 1,253 | 557 | $140 | 1 | 627 | 279 | $71 | $212 | 134 |
| 8,835 | 3 | 6,626 | 8 | 11,780 | 4 | 8,835 | 10 | 14,725 | 368 | 44,175 | 82,460 | $11,783 | 221 | 35,340 | 58,900 | $8,515 | $20,298 | 135 |
| 1,194 | 4 | 895 | 8 | 1,194 | 4 | 895 | 8 | 1,194 | 45 | 7,162 | 9,549 | $1,510 | 22 | 3,581 | 4,774 | $776 | $2,286 | 136 |
| 165 | 12 | 372 | 8 | 165 | 12 | 372 | 8 | 165 | 6 | 2,972 | 1,321 | $333 | 3 | 1,486 | 660 | $169 | $502 | 137 |
| 1,298 | 3 | 974 | 8 | 1,731 | 4 | 1,298 | 10 | 2,163 | 54 | 6,490 | 12,115 | $1,731 | 32 | 5,192 | 8,654 | $1,251 | $2,982 | 138 |
| 865 | 2 | 649 | 4 | 865 | 4 | 1,298 | 6 | 1,298 | 32 | 3,894 | 6,923 | $1,014 | 32 | 5,192 | 5,192 | $1,000 | $2,014 | 139 |
| 1,992 | 3 | 1,494 | 8 | 2,656 | 4 | 1,992 | 10 | 3,320 | 83 | 9,959 | 18,590 | $2,656 | 50 | 7,967 | 13,279 | $1,920 | $4,576 | 140 |
| 1,298 | 3 | 974 | 8 | 1,731 | 4 | 1,298 | 10 | 2,163 | 54 | 6,490 | 12,115 | $1,731 | 32 | 5,192 | 8,654 | $1,251 | $2,982 | 141 |
| 865 | 2 | 649 | 4 | 865 | 4 | 1,298 | 6 | 1,298 | 32 | 3,894 | 6,923 | $1,014 | 32 | 5,192 | 5,192 | $1,000 | $2,014 | 142 |
| 1,790 | 3 | 1,343 | 8 | 2,387 | 4 | 1,790 | 10 | 2,984 | 75 | 8,952 | 16,710 | $2,388 | 45 | 7,162 | 11,936 | $1,726 | $4,113 | 143 |
| 1,992 | 3 | 1,494 | 8 | 2,656 | 4 | 1,992 | 10 | 3,320 | 83 | 9,959 | 18,590 | $2,656 | 50 | 7,967 | 13,279 | $1,920 | $4,576 | 144 |
| 2,775 | 3 | 2,081 | 8 | 3,700 | 4 | 2,775 | 10 | 4,625 | 116 | 13,876 | 25,901 | $3,701 | 69 | 11,100 | 18,501 | $2,675 | $6,376 | 145 |
| 1,850 | 2 | 1,388 | 4 | 1,850 | 4 | 2,775 | 6 | 2,775 | 69 | 8,325 | 14,801 | $2,167 | 69 | 11,100 | 11,100 | $2,138 | $4,305 | 146 |
| 80 | 12 | 179 | 8 | 80 | 12 | 179 | 8 | 80 | 3 | 1,432 | 637 | $160 | 1 | 716 | 318 | $82 | $242 | 147 |
| 1,253 | 4 | 940 | 8 | 1,253 | 4 | 940 | 8 | 1,253 | 47 | 7,520 | 10,026 | $1,585 | 23 | 3,760 | 5,013 | $815 | $2,401 | 148 |
| 328 | 4 | 246 | 8 | 328 | 4 | 246 | 8 | 328 | 12 | 1,969 | 2,626 | $415 | 6 | 985 | 1,313 | $213 | $629 | 149 |
| 38 | 12 | 85 | 8 | 38 | 12 | 85 | 8 | 38 | 1 | 680 | 302 | $76 | 1 | 340 | 151 | $39 | $115 | 150 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 151 |

| HVAC Item | HVAC Airside Equipment - General Information: Design/Site Designatio | Equip. Type | Field Data/Reference/(Location) | Area Served | Cooling Equipment Field Data/Reference/(Location) | Total Connected Load (kW) | Winter Demand kW/month | Intermed. Demand kW/month | Sur Der kW/ |
|---|---|---|---|---|---|---|---|---|---|
| 152 | AC-7 | AHU | unknown(MR - 41 South 4C/D100 Area) | 4D110 lab/offices | Compressor in MR-41 & tower on roof | 40.2 | 10.1 | 20.1 | |
| 153 | AC-1(New) | AHU | Governair RSA06(located on roof) | 4D130 Cleanroom (Class 10 | Common Bohn Chiller on roof | 97.9 | 49.0 | 73.4 | |
| 154 | AC-2(New) | AHU | Governair RSA03(located on roof) | 4D130/140 Cleanrooms(Clas | Common Bohn Chiller on roof | 62.4 | 31.2 | 46.8 | |
| 155 | AC-3(New) | AHU | Governair RSA02(located on roof) | 4D130 Cleanroom (Class 10 | Common Bohn Chiller on roof | 37.4 | 18.7 | 28.1 | |
| 156 | - | AHU | Carrier ?(in/above 4D140 Cleanroom) | 4D140 Cleanroom | Carrier Chiller on roof | 26.7 | 13.4 | 20.0 | |
| 157 | AHU-R-1 | AHU-MCA | Trane C.C.(On roof above 4C/D100 Area) | 4C/D100 offices/corridors | Plant Chilled Water @ 55 degrees F | 7.8 | 5.9 | 5.9 | |
| 158 | AHU-R-2 | AHU-MCA | Trane C.C.(On roof above 4C/D100 Area) | 4C/D100 offices/corridors | Plant Chilled Water @ 55 degrees F | 7.1 | 5.3 | 5.3 | |
| 159 | FC-1(83) | FC | unknown(83 in 4C/D100 area) | 4C/D100 perimeter areas | Plant Chilled Water @ 55 degrees F | 1.0 | 0.8 | 0.8 | |
| 160 | C-5 | Convector | unknown(Near Elevator #1 - Fourth floor) | Hallway - Elev. #1 | N/A | 0.00 | 0.0 | 0.0 | |
| 161 | - | Recirc. AC | Data Air(4C205/Computer room) | 4C205 Area | (2) Common Bohn units(located on roof) | 23.9 | 11.9 | 17.9 | |
| 162 | - | Recirc. AC | Data Air(4C209/Computer room) | 4C209 Area | (2) Common Bohn units(located on roof) | 12.7 | 6.3 | 9.5 | |
| 163 | - | Recirc. AC | Data Air(4C211/Computer room) | 4C211 Area | (2) Common Bohn units(located on roof) | 12.7 | 6.3 | 9.5 | |
| 164 | - | Recirc. AC | Data Air(4C213/Computer room) | 4C213 Area | (2) Common Bohn units(located on roof) | 12.7 | 6.3 | 9.5 | |
| 165 | - | Recirc. AC | Edpac(4D204/Computer room) | 4D204 Area | (2) Common Bohn units(located on roof) | 12.7 | 6.3 | 9.5 | |
| 166 | - | Recirc. AC | Edpac(4D204/Computer room) | 4D204 Area | (2) Common Bohn units(located on roof) | 12.7 | 6.3 | 9.5 | |
| 167 | - | Recirc. AC | Data Air(4D208/Computer room) | 4D208 Area | (2) Common Bohn units(located on roof) | 18.7 | 9.3 | 14.0 | |
| 168 | - | Recirc. AC | Data Air(4D210/Computer room) | 4D210 Area | (2) Common Bohn units(located on roof) | 6.3 | 3.2 | 4.8 | |
| 169 | - | Recirc. AC | Data Air(4D214/Computer room) | 4D214 Area | (2) Common Bohn units(located on roof) | 6.3 | 3.2 | 4.8 | |
| 170 | AHU-R-3 | AHU-MCA | Trane C.C.(On roof above 4C/D300 Area) | 4C/D100/200/300 offices/cor | Plant Chilled Water @ 55 degrees F | 9.7 | 7.3 | 7.3 | |
| 171 | FC-1(40) | FC | unknown(40 in 4C/D200 area) | 4C/D200 perimeter areas | Plant Chilled Water @ 55 degrees F | 0.5 | 0.4 | 0.4 | |
| 172 | - | Recirc. AC | Liebert(4D308/Computer room) | 4D308 | Liebert Unit in 4D308 & tower on roof | 12.7 | 6.3 | 9.5 | |
| 173 | - | Recirc. AC | Edpac(4D317/Computer room) | 4C317 | Edpac Unit in 4C317 & tower on roof | 13.4 | 6.7 | 10.1 | |
| 174 | - | Recirc. AC | Liebert(4D324/Computer room) | 4D324 | Liebert(located on roof) | 16.6 | 8.3 | 12.4 | |
| 175 | - | Recirc. AC | Liebert(4D326/Computer room) | 4D326 | Liebert(located on roof) | 10.8 | 5.4 | 8.1 | |
| 176 | - | Recirc. AC | Liebert(4D328/Computer room) | 4D328 | Liebert(located on roof) | 10.8 | 5.4 | 8.1 | |
| 177 | - | Recirc. AC | Liebert(4D328/Computer room) | 4D328 | Liebert(located on roof) | 10.8 | 2.7 | 5.4 | |
| 178 | AHU-R-4 | AHU-MCA | Trane C.C.(On roof above 4C/D300 Area) | 4C/D300 offices/corridors | Plant Chilled Water @ 55 degrees F | 4.8 | 3.6 | 3.6 | |
| 179 | FC-1(88) | FC | unknown(88 in 4C/D300 area) | 4C/D300 perimeter areas | Plant Chilled Water @ 55 degrees F | 1.1 | 0.8 | 0.8 | |
| 180 | - | Recirc. AC | Datac(4C405/Computer room) | 4C405 | Liebert(located on roof) | 16.6 | 8.3 | 12.4 | |
| 181 | - | Recirc. AC | Liebert(4C405/Computer room) | 4C405 | Liebert(located on roof) | 16.6 | 8.3 | 12.4 | |
| 182 | - | Recirc. AC | Liebert(4C405/Computer room) | 4C405 | Liebert(located on roof) | 16.6 | 4.1 | 8.3 | |
| 183 | - | Recirc. AC | Liebert(4C405/Computer room) | 4C405 | Liebert(located on roof) | 10.8 | 2.7 | 5.4 | |
| 184 | - | Recirc. AC | Liebert(4C417/Computer room) | 4C417 | Liebert(located on roof) | 16.6 | 8.3 | 12.4 | |
| 185 | - | Recirc. AC | Liebert(4C417/Computer room) | 4C417 | Liebert(located on roof) | 16.6 | 8.3 | 12.4 | |
| 186 | - | Recirc. AC | Liebert(4C417/Computer room) | 4C417 | Liebert(located on roof) | 8.6 | 2.1 | 4.3 | |
| 187 | AHU-R-5 | AHU-MCA | Trane C.C.(On roof above 4C/D300 Area) | 4C/D300/400 offices/corridor | Plant Chilled Water @ 55 degrees F | 5.2 | 3.9 | 3.9 | |
| 188 | FC-1(44) | FC | unknown(44 in 4C/D400 area) | 4C/D400 perimeter areas | Plant Chilled Water @ 55 degrees F | 0.5 | 0.4 | 0.4 | |
| 189 | AHU-R-6 | AHU-MCA | Trane C.C.(On roof above 4C/D500 Area) | 4C/D400/500 offices/corridor | Plant Chilled Water @ 55 degrees F | 9.7 | 7.3 | 7.3 | |
| 190 | FC-1(20) | FC | unknown(20 in 4C/D500 area) | 4C/D500 perimeter areas | Plant Chilled Water @ 55 degrees F | 0.2 | 0.2 | 0.2 | |
| 191 | C-5 | Convector | unknown(Near Elevator #7 - Fouth floor) | Hallway - Elev. #7 | N/A | 0.0 | 0.0 | 0.0 | |
| 192 | A1 | Scrubber | AAF Colag | Room 4D110 | N/A | 3.02 | 2.3 | 2.3 | |
| 193 | A2 | Exhaust | Trane CF13A | Room 4D110 | N/A | 0.37 | 0.3 | 0.3 | |
| 194 | A3 | Exhaust | Dayton | MR 21, 31, & 41 | N/A | 1.49 | 1.1 | 1.1 | |
| 195 | A5 | Scrubber | AAF | Room 4D120 | N/A | 14.92 | 11.2 | 11.2 | |
| 196 | A6 | Scrubber | Duall (Met-Pro) Model NH40 | Room 4D120 | N/A | 5.59 | 4.2 | 4.2 | |
| 197 | A8 | Exhaust | EV-1 | East End Toilets | N/A | 1.49 | 1.1 | 1.1 | |
| 198 | A11 | Exhaust | Car-Mon Model CMB-35 | 4D130 - Toxic Gas | N/A | 3.73 | 2.8 | 2.8 | |
| 199 | A12 | Exhaust | EV-2 | Substation 4 | N/A | 0.75 | 0.6 | 0.6 | |
| 200 | A13 | Exhaust | EV-7 (2-speed at 18,000 & 9,000 CFM) | 1st Floor Audio/Visual | N/A | 2.24 | 1.7 | 1.7 | |
| 201 | A14 | Scrubber | Duall (Met-Pro) Model NH36.5 | Room 4D130 | N/A | 7.46 | 5.6 | 5.6 | |
| 202 | A15 | Scrubber | American Standard Type S | Room 4D108 | N/A | 3.73 | 2.8 | 2.8 | |
| 203 | A17 | Exhaust | EV-39 | Room 2D134 | N/A | 0.37 | 0.3 | 0.3 | |
| 204 | A18 | Scrubber | Duall (Met-Pro) Model NH36.5 | Room 2D134 | N/A | 7.46 | 5.6 | 5.6 | |
| 205 | A19 | Exhaust | None | Room 2D129 | N/A | 0.37 | 0.3 | 0.3 | |
| 206 | A20 | Exhaust | None | Room 4D130 | N/A | 0.06 | 0.04 | 0.04 | |
| 207 | A21 | Exhaust | None | Room 4D130 | N/A | 0.06 | 0.04 | 0.04 | |
| 208 | A29 | Scrubber | Duall (Met-Pro) Model SI10 | Room 4D130 | N/A | 1.47 | 1.1 | 1.1 | |
| 209 | A31 | Scrubber | Duall (Met-Pro) Model NH36.5 | Room 2D202 | N/A | 7.46 | 5.6 | 5.6 | |
| 210 | A32 | Exhaust | None | Room 2D202 | N/A | 0.15 | 0.1 | 0.1 | |
| 211 | A33 | Exhaust | EV-54 (Guess) | MR 22, 32, & 42 | N/A | 1.49 | 1.1 | 1.1 | |
| 212 | A34 | Exhaust | None | Room 4D130 | N/A | 0.04 | 0.03 | 0.03 | |
| 213 | B1 | Exhaust | None (Not In Service or NIS) | Unknown | N/A | 0.37 | 0.28 | 0.28 | |
| 214 | B1A | Exhaust | None (NIS) | Unknown | N/A | 0.04 | 0.03 | 0.03 | |
| 215 | B4 | Exhaust | Trane CF13 | 3rd Floor (Guess) | N/A | 0.37 | 0.3 | 0.3 | |
| 216 | B5 | Exhaust | Trane U10K5 | Room 4C204 | N/A | 0.37 | 0.3 | 0.3 | |
| 217 | B6 | Exhaust | EV-66A | 4th Floor | N/A | 2.24 | 1.7 | 1.7 | |
| 218 | B7 | Exhaust | EV-32 | 4th Floor | N/A | 0.25 | 0.2 | 0.2 | |
| 219 | B9 | Exhaust | EV-4 | 2nd Floor | N/A | 0.75 | 0.6 | 0.6 | |
| 220 | B9A | Exhaust | EV-31 | 4th Floor | N/A | 0.25 | 0.2 | 0.2 | |
| 221 | B10 | Exhaust | EV-66 | 2nd Floor | N/A | 2.24 | 1.7 | 1.7 | |
| 222 | B11 | Exhaust | EV-67 | 2nd Floor | N/A | 0.37 | 0.3 | 0.3 | |
| 223 | B12 | Exhaust | EV-26 | 2nd Floor | N/A | 1.49 | 1.1 | 1.1 | |
| 224 | B13 | Exhaust | EV-67A (NIS) | 2nd Floor | N/A | 0.37 | 0.3 | 0.3 | |
| 225 | B14 | Exhaust | EV-99 (NIS) | 2nd Floor | N/A | 0.00 | 0.0 | 0.0 | |

# FT. MONMOUTH, DEPARTMENT OF THE ARMY
# BUILDING 2700 ELECTRIC MODEL - ALL FLOORS & BUILDING 2706 HVAC EQUIPMENT

### TABLE 5.6.2.2

| | Cooling Equipment Field Data/Reference/(Location) | Total Connected Load (kW) | Winter Demand kW/month | Intermed. Demand kW/month | Summer Demand kW/month | Winter Billing Months Off-Peak hrs/day | Winter Off-Peak kWh/Mo | Winter On-Peak hrs/day | Winter On-Peak kWh/Mo | Intermediate Billing Months Off-Peak hrs/day | Intermediate Off-Peak kWh/Mo | Intermediate On-Peak hrs/day | Intermediate On-Peak kWh/Mo | Summer Billing Months Off-Peak hrs/day | Summer Off-Peak kWh/Mo | Summer On-Peak hrs/day | Summer On-Peak kWh/Mo | Demand kW/Yr. | Non-Sum Off-Peak KWH/Yr. | O K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Compressor in MR-41 & tower on roof | 40.2 | 10.1 | 20.1 | 30.2 | 1 | 1,207 | 4 | 3,219 | 2 | 2,414 | 4 | 3,219 | 4 | 4,828 | 6 | 4,828 | 121 | 14,484 | |
| ss 10 | Common Bohn Chiller on roof | 97.9 | 49.0 | 73.4 | 73.4 | 2 | 5,874 | 4 | 7,832 | 4 | 11,748 | 6 | 11,748 | 8 | 23,496 | 10 | 19,580 | 490 | 70,488 | |
| s(Clas | Common Bohn Chiller on roof | 62.4 | 31.2 | 46.8 | 46.8 | 2 | 3,744 | 4 | 4,992 | 4 | 7,488 | 6 | 7,488 | 8 | 14,976 | 10 | 12,480 | 312 | 44,928 | |
| ss 10 | Common Bohn Chiller on roof | 37.4 | 18.7 | 28.1 | 28.1 | 2 | 2,244 | 4 | 2,992 | 4 | 4,488 | 6 | 4,488 | 8 | 8,976 | 10 | 7,480 | 187 | 26,928 | |
| | Carrier Chiller on roof | 26.7 | 13.4 | 20.0 | 20.0 | 2 | 1,604 | 4 | 2,138 | 4 | 3,208 | 6 | 3,208 | 8 | 6,415 | 10 | 5,346 | 134 | 19,246 | |
| ors | Plant Chilled Water @ 55 degrees F | 7.8 | 5.9 | 5.9 | 5.9 | 12 | 2,820 | 8 | 1,253 | 12 | 2,820 | 8 | 1,253 | 12 | 2,820 | 8 | 1,253 | 47 | 22,559 | |
| ors | Plant Chilled Water @ 55 degrees F | 7.1 | 5.3 | 5.3 | 5.3 | 12 | 2,551 | 8 | 1,134 | 12 | 2,551 | 8 | 1,134 | 12 | 2,551 | 8 | 1,134 | 43 | 20,411 | |
| as | Plant Chilled Water @ 55 degrees F | 1.0 | 0.8 | 0.8 | 0.8 | 12 | 372 | 8 | 165 | 12 | 372 | 8 | 165 | 12 | 372 | 8 | 165 | 6 | 2,972 | |
| | N/A | 0.00 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | (2) Common Bohn units(located on roof) | 23.9 | 11.9 | 17.9 | 17.9 | 2 | 1,432 | 6 | 2,865 | 3 | 2,148 | 8 | 3,820 | 4 | 2,865 | 10 | 4,774 | 119 | 14,323 | |
| | (2) Common Bohn units(located on roof) | 12.7 | 6.3 | 9.5 | 9.5 | 2 | 761 | 6 | 1,522 | 3 | 1,141 | 8 | 2,029 | 4 | 1,522 | 10 | 2,536 | 63 | 7,609 | |
| | (2) Common Bohn units(located on roof) | 12.7 | 6.3 | 9.5 | 9.5 | 2 | 761 | 6 | 1,522 | 3 | 1,141 | 8 | 2,029 | 4 | 1,522 | 10 | 2,536 | 63 | 7,609 | |
| | (2) Common Bohn units(located on roof) | 12.7 | 6.3 | 9.5 | 9.5 | 2 | 761 | 6 | 1,522 | 3 | 1,141 | 8 | 2,029 | 4 | 1,522 | 10 | 2,536 | 63 | 7,609 | |
| | (2) Common Bohn units(located on roof) | 12.7 | 6.3 | 9.5 | 9.5 | 2 | 761 | 6 | 1,522 | 3 | 1,141 | 8 | 2,029 | 4 | 1,522 | 10 | 2,536 | 63 | 7,609 | |
| | (2) Common Bohn units(located on roof) | 12.7 | 6.3 | 9.5 | 9.5 | 2 | 761 | 6 | 1,522 | 3 | 1,141 | 8 | 2,029 | 4 | 1,522 | 10 | 2,536 | 63 | 7,609 | |
| | (2) Common Bohn units(located on roof) | 18.7 | 9.3 | 14.0 | 14.0 | 2 | 1,119 | 6 | 2,238 | 3 | 1,679 | 8 | 2,984 | 4 | 2,238 | 10 | 3,730 | 93 | 11,190 | |
| | (2) Common Bohn units(located on roof) | 6.3 | 3.2 | 4.8 | 4.8 | 2 | 380 | 6 | 761 | 3 | 571 | 8 | 1,015 | 4 | 761 | 10 | 1,268 | 32 | 3,805 | |
| | (2) Common Bohn units(located on roof) | 6.3 | 3.2 | 4.8 | 4.8 | 2 | 380 | 6 | 761 | 3 | 571 | 8 | 1,015 | 4 | 761 | 10 | 1,268 | 32 | 3,805 | |
| es/cor | Plant Chilled Water @ 55 degrees F | 9.7 | 7.3 | 7.3 | 7.3 | 12 | 3,491 | 8 | 1,552 | 12 | 3,491 | 8 | 1,552 | 12 | 3,491 | 8 | 1,552 | 58 | 27,930 | |
| as | Plant Chilled Water @ 55 degrees F | 0.5 | 0.4 | 0.4 | 0.4 | 12 | 179 | 8 | 80 | 12 | 179 | 8 | 80 | 12 | 179 | 8 | 80 | 3 | 1,432 | |
| | Liebert Unit in 4D308 & tower on roof | 12.7 | 6.3 | 9.5 | 9.5 | 2 | 761 | 6 | 1,522 | 3 | 1,141 | 8 | 2,029 | 4 | 1,522 | 10 | 2,536 | 63 | 7,609 | |
| | Edpac Unit in 4C317 & tower on roof | 13.4 | 6.7 | 10.1 | 10.1 | 2 | 806 | 6 | 1,611 | 3 | 1,209 | 8 | 2,148 | 4 | 1,611 | 10 | 2,686 | 67 | 8,057 | |
| | Liebert(located on roof) | 16.6 | 8.3 | 12.4 | 12.4 | 2 | 996 | 6 | 1,992 | 3 | 1,494 | 8 | 2,656 | 4 | 1,992 | 10 | 3,320 | 83 | 9,959 | |
| | Liebert(located on roof) | 10.8 | 5.4 | 8.1 | 8.1 | 2 | 649 | 6 | 1,298 | 3 | 974 | 8 | 1,731 | 4 | 1,298 | 10 | 2,163 | 54 | 6,490 | |
| | Liebert(located on roof) | 10.8 | 5.4 | 8.1 | 8.1 | 2 | 649 | 6 | 1,298 | 3 | 974 | 8 | 1,731 | 4 | 1,298 | 10 | 2,163 | 54 | 6,490 | |
| | Liebert(located on roof) | 10.8 | 2.7 | 5.4 | 8.1 | 1 | 325 | 4 | 865 | 2 | 649 | 4 | 865 | 4 | 1,298 | 6 | 1,298 | 32 | 3,894 | |
| ors | Plant Chilled Water @ 55 degrees F | 4.8 | 3.6 | 3.6 | 3.6 | 12 | 1,746 | 8 | 776 | 12 | 1,746 | 8 | 776 | 12 | 1,746 | 8 | 776 | 29 | 13,965 | |
| as | Plant Chilled Water @ 55 degrees F | 1.1 | 0.8 | 0.8 | 0.8 | 12 | 394 | 8 | 175 | 12 | 394 | 8 | 175 | 12 | 394 | 8 | 175 | 7 | 3,151 | |
| | Liebert(located on roof) | 16.6 | 8.3 | 12.4 | 12.4 | 2 | 996 | 6 | 1,992 | 3 | 1,494 | 8 | 2,656 | 4 | 1,992 | 10 | 3,320 | 83 | 9,959 | |
| | Liebert(located on roof) | 16.6 | 8.3 | 12.4 | 12.4 | 2 | 996 | 6 | 1,992 | 3 | 1,494 | 8 | 2,656 | 4 | 1,992 | 10 | 3,320 | 83 | 9,959 | |
| | Liebert(located on roof) | 16.6 | 4.1 | 8.3 | 12.4 | 1 | 498 | 4 | 1,328 | 2 | 996 | 4 | 1,328 | 4 | 1,992 | 6 | 1,992 | 50 | 5,975 | |
| | Liebert(located on roof) | 10.8 | 2.7 | 5.4 | 8.1 | 1 | 325 | 4 | 865 | 2 | 649 | 4 | 865 | 4 | 1,298 | 6 | 1,298 | 32 | 3,894 | |
| | Liebert(located on roof) | 16.6 | 8.3 | 12.4 | 12.4 | 2 | 996 | 6 | 1,992 | 3 | 1,494 | 8 | 2,656 | 4 | 1,992 | 10 | 3,320 | 83 | 9,959 | |
| | Liebert(located on roof) | 16.6 | 8.3 | 12.4 | 12.4 | 2 | 996 | 6 | 1,992 | 3 | 1,494 | 8 | 2,656 | 4 | 1,992 | 10 | 3,320 | 83 | 9,959 | |
| | Liebert(located on roof) | 8.6 | 2.1 | 4.3 | 6.4 | 1 | 257 | 4 | 686 | 2 | 515 | 4 | 686 | 4 | 1,029 | 6 | 1,029 | 26 | 3,088 | |
| omdor | Plant Chilled Water @ 55 degrees F | 5.2 | 3.9 | 3.9 | 3.9 | 12 | 1,880 | 8 | 836 | 12 | 1,880 | 8 | 836 | 12 | 1,880 | 8 | 836 | 31 | 15,039 | |
| as | Plant Chilled Water @ 55 degrees F | 0.5 | 0.4 | 0.4 | 0.4 | 12 | 197 | 8 | 88 | 12 | 197 | 8 | 88 | 12 | 197 | 8 | 88 | 3 | 1,576 | |
| omdor | Plant Chilled Water @ 55 degrees F | 9.7 | 7.3 | 7.3 | 7.3 | 12 | 3,491 | 8 | 1,552 | 12 | 3,491 | 8 | 1,552 | 12 | 3,491 | 8 | 1,552 | 58 | 27,930 | |
| as | Plant Chilled Water @ 55 degrees F | 0.2 | 0.2 | 0.2 | 0.2 | 12 | 90 | 8 | 40 | 12 | 90 | 8 | 40 | 12 | 90 | 8 | 40 | 1 | 716 | |
| | N/A | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | N/A | 3.02 | 2.3 | 2.3 | 2.3 | 12 | 1,086 | 8 | 483 | 12 | 1,086 | 8 | 483 | 12 | 1,086 | 8 | 483 | 18 | 8,689 | |
| | N/A | 0.37 | 0.3 | 0.3 | 0.3 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 2 | 1,074 | |
| | N/A | 1.49 | 1.1 | 1.1 | 1.1 | 12 | 537 | 8 | 239 | 12 | 537 | 8 | 239 | 12 | 537 | 8 | 239 | 9 | 4,297 | |
| | N/A | 14.92 | 11.2 | 11.2 | 11.2 | 12 | 5,371 | 8 | 2,387 | 12 | 5,371 | 8 | 2,387 | 12 | 5,371 | 8 | 2,387 | 90 | 42,970 | |
| | N/A | 5.59 | 4.2 | 4.2 | 4.2 | 12 | 2,011 | 8 | 894 | 12 | 2,011 | 8 | 894 | 12 | 2,011 | 8 | 894 | 34 | 16,090 | |
| | N/A | 1.49 | 1.1 | 1.1 | 1.1 | 12 | 537 | 8 | 239 | 12 | 537 | 8 | 239 | 12 | 537 | 8 | 239 | 9 | 4,297 | |
| | N/A | 3.73 | 2.8 | 2.8 | 2.8 | 12 | 1,343 | 8 | 597 | 12 | 1,343 | 8 | 597 | 12 | 1,343 | 8 | 597 | 22 | 10,742 | |
| | N/A | 0.75 | 0.6 | 0.6 | 0.6 | 12 | 269 | 8 | 119 | 12 | 269 | 8 | 119 | 12 | 269 | 8 | 119 | 4 | 2,148 | |
| | N/A | 2.24 | 1.7 | 1.7 | 1.7 | 12 | 806 | 8 | 358 | 12 | 806 | 8 | 358 | 12 | 806 | 8 | 358 | 13 | 6,445 | |
| | N/A | 7.46 | 5.6 | 5.6 | 5.6 | 12 | 2,686 | 8 | 1,194 | 12 | 2,686 | 8 | 1,194 | 12 | 2,686 | 8 | 1,194 | 45 | 21,485 | |
| | N/A | 3.73 | 2.8 | 2.8 | 2.8 | 12 | 1,343 | 8 | 597 | 12 | 1,343 | 8 | 597 | 12 | 1,343 | 8 | 597 | 22 | 10,742 | |
| | N/A | 0.37 | 0.3 | 0.3 | 0.3 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 2 | 1,074 | |
| | N/A | 7.46 | 5.6 | 5.6 | 5.6 | 12 | 2,686 | 8 | 1,194 | 12 | 2,686 | 8 | 1,194 | 12 | 2,686 | 8 | 1,194 | 45 | 21,485 | |
| | N/A | 0.37 | 0.3 | 0.3 | 0.3 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 2 | 1,074 | |
| | N/A | 0.06 | 0.04 | 0.04 | 0.04 | 12 | 21 | 8 | 9 | 12 | 21 | 8 | 9 | 12 | 21 | 8 | 9 | 0 | 169 | |
| | N/A | 0.06 | 0.04 | 0.04 | 0.04 | 12 | 21 | 8 | 9 | 12 | 21 | 8 | 9 | 12 | 21 | 8 | 9 | 0 | 169 | |
| | N/A | 1.47 | 1.1 | 1.1 | 1.1 | 12 | 528 | 8 | 235 | 12 | 528 | 8 | 235 | 12 | 528 | 8 | 235 | 9 | 4,225 | |
| | N/A | 7.46 | 5.6 | 5.6 | 5.6 | 12 | 2,686 | 8 | 1,194 | 12 | 2,686 | 8 | 1,194 | 12 | 2,686 | 8 | 1,194 | 45 | 21,485 | |
| | N/A | 0.15 | 0.1 | 0.1 | 0.1 | 12 | 53 | 8 | 23 | 12 | 53 | 8 | 23 | 12 | 53 | 8 | 23 | 1 | 423 | |
| | N/A | 1.49 | 1.1 | 1.1 | 1.1 | 12 | 537 | 8 | 239 | 12 | 537 | 8 | 239 | 12 | 537 | 8 | 239 | 9 | 4,297 | |
| | N/A | 0.04 | 0.03 | 0.03 | 0.03 | 3 | 4 | 2 | 2 | 3 | 4 | 2 | 2 | 3 | 4 | 2 | 2 | 0 | 32 | |
| | N/A | 0.37 | 0.28 | 0.28 | 0.28 | 3 | 34 | 2 | 15 | 3 | 34 | 2 | 15 | 3 | 34 | 2 | 15 | 2 | 269 | |
| | N/A | 0.04 | 0.03 | 0.03 | 0.03 | 3 | 4 | 2 | 2 | 3 | 4 | 2 | 2 | 3 | 4 | 2 | 2 | 0 | 32 | |
| | N/A | 0.37 | 0.3 | 0.3 | 0.3 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 2 | 1,074 | |
| | N/A | 0.37 | 0.3 | 0.3 | 0.3 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 2 | 1,074 | |
| | N/A | 2.24 | 1.7 | 1.7 | 1.7 | 12 | 806 | 8 | 358 | 12 | 806 | 8 | 358 | 12 | 806 | 8 | 358 | 13 | 6,445 | |
| | N/A | 0.25 | 0.2 | 0.2 | 0.2 | 12 | 89 | 8 | 39 | 12 | 89 | 8 | 39 | 12 | 89 | 8 | 39 | 1 | 709 | |
| | N/A | 0.75 | 0.6 | 0.6 | 0.6 | 12 | 269 | 8 | 119 | 12 | 269 | 8 | 119 | 12 | 269 | 8 | 119 | 4 | 2,148 | |
| | N/A | 0.25 | 0.2 | 0.2 | 0.2 | 12 | 89 | 8 | 39 | 12 | 89 | 8 | 39 | 12 | 89 | 8 | 39 | 1 | 709 | |
| | N/A | 2.24 | 1.7 | 1.7 | 1.7 | 12 | 806 | 8 | 358 | 12 | 806 | 8 | 358 | 12 | 806 | 8 | 358 | 13 | 6,445 | |
| | N/A | 0.37 | 0.3 | 0.3 | 0.3 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 2 | 1,074 | |
| | N/A | 1.49 | 1.1 | 1.1 | 1.1 | 12 | 537 | 8 | 239 | 12 | 537 | 8 | 239 | 12 | 537 | 8 | 239 | 9 | 4,297 | |
| | N/A | 0.37 | 0.3 | 0.3 | 0.3 | 3 | 34 | 2 | 15 | 3 | 34 | 2 | 15 | 3 | 34 | 2 | 15 | 2 | 269 | |
| | N/A | 0.00 | 0.0 | 0.0 | 0.0 | 3 | 0 | 2 | 0 | 3 | 0 | 2 | 0 | 3 | 0 | 2 | 0 | 0 | 0 | |

2

## ıENT OF THE ARMY
## ꝛS & BUILDING 2706 HVAC EQUIPMENT

.2

| Months | | Intermediate Billing Months | | | | Summer Billing Months | | | | Non-Summer | | | | Summer | | | | Annual | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| On-Peak | | Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | Demand | Off-Peak | On-Peak | Cost | Demand | Off-Peak | On-Peak | Cost | Cost | |
| s/ y | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | kW/Yr. | KWH/Yr. | KWH/Yr. | $ | kW/Yr. | KWH/Yr. | KWH/Yr. | $ | $ | No. |
| 4 | 3,219 | 2 | 2,414 | 4 | 3,219 | 4 | 4,828 | 6 | 4,828 | 121 | 14,484 | 25,749 | $3,770 | 121 | 19,312 | 19,312 | $3,720 | $7,490 | 152 |
| 4 | 7,832 | 4 | 11,748 | 6 | 11,748 | 8 | 23,496 | 10 | 19,580 | 490 | 70,488 | 78,320 | $14,135 | 294 | 93,984 | 78,320 | $14,263 | $28,397 | 153 |
| 4 | 4,992 | 4 | 7,488 | 6 | 7,488 | 8 | 14,976 | 10 | 12,480 | 312 | 44,928 | 49,920 | $9,009 | 187 | 59,904 | 49,920 | $9,091 | $18,100 | 154 |
| 4 | 2,992 | 4 | 4,488 | 6 | 4,488 | 8 | 8,976 | 10 | 7,480 | 187 | 26,928 | 29,920 | $5,400 | 112 | 35,904 | 29,920 | $5,449 | $10,848 | 155 |
| 4 | 2,138 | 4 | 3,208 | 6 | 3,208 | 8 | 6,415 | 10 | 5,346 | 134 | 19,246 | 21,384 | $3,859 | 80 | 25,661 | 21,384 | $3,894 | $7,754 | 156 |
| 8 | 1,253 | 12 | 2,820 | 8 | 1,253 | 12 | 2,820 | 8 | 1,253 | 47 | 22,559 | 10,026 | $2,524 | 23 | 11,280 | 5,013 | $1,286 | $3,810 | 157 |
| 8 | 1,134 | 12 | 2,551 | 8 | 1,134 | 12 | 2,551 | 8 | 1,134 | 43 | 20,411 | 9,071 | $2,284 | 21 | 10,205 | 4,536 | $1,163 | $3,447 | 158 |
| 8 | 165 | 12 | 372 | 8 | 165 | 12 | 372 | 8 | 165 | 6 | 2,972 | 1,321 | $333 | 3 | 1,486 | 660 | $169 | $502 | 159 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 160 |
| 6 | 2,865 | 3 | 2,148 | 8 | 3,820 | 4 | 2,865 | 10 | 4,774 | 119 | 14,323 | 26,737 | $3,820 | 72 | 11,459 | 19,098 | $2,761 | $6,581 | 161 |
| 6 | 1,522 | 3 | 1,141 | 8 | 2,029 | 4 | 1,522 | 10 | 2,536 | 63 | 7,609 | 14,204 | $2,030 | 38 | 6,087 | 10,146 | $1,467 | $3,496 | 162 |
| 6 | 1,522 | 3 | 1,141 | 8 | 2,029 | 4 | 1,522 | 10 | 2,536 | 63 | 7,609 | 14,204 | $2,030 | 38 | 6,087 | 10,146 | $1,467 | $3,496 | 163 |
| 6 | 1,522 | 3 | 1,141 | 8 | 2,029 | 4 | 1,522 | 10 | 2,536 | 63 | 7,609 | 14,204 | $2,030 | 38 | 6,087 | 10,146 | $1,467 | $3,496 | 164 |
| 6 | 1,522 | 3 | 1,141 | 8 | 2,029 | 4 | 1,522 | 10 | 2,536 | 63 | 7,609 | 14,204 | $2,030 | 38 | 6,087 | 10,146 | $1,467 | $3,496 | 165 |
| 6 | 1,522 | 3 | 1,141 | 8 | 2,029 | 4 | 1,522 | 10 | 2,536 | 63 | 7,609 | 14,204 | $2,030 | 38 | 6,087 | 10,146 | $1,467 | $3,496 | 166 |
| 6 | 2,238 | 3 | 1,679 | 8 | 2,984 | 4 | 2,238 | 10 | 3,730 | 93 | 11,190 | 20,888 | $2,985 | 56 | 8,952 | 14,920 | $2,157 | $5,142 | 167 |
| 6 | 761 | 3 | 571 | 8 | 1,015 | 4 | 761 | 10 | 1,268 | 32 | 3,805 | 7,102 | $1,015 | 19 | 3,044 | 5,073 | $733 | $1,748 | 168 |
| 6 | 761 | 3 | 571 | 8 | 1,015 | 4 | 761 | 10 | 1,268 | 32 | 3,805 | 7,102 | $1,015 | 19 | 3,044 | 5,073 | $733 | $1,748 | 169 |
| 8 | 1,552 | 12 | 3,491 | 8 | 1,552 | 12 | 3,491 | 8 | 1,552 | 58 | 27,930 | 12,413 | $3,125 | 29 | 13,965 | 6,207 | $1,592 | $4,717 | 170 |
| 8 | 80 | 12 | 179 | 8 | 80 | 12 | 179 | 8 | 80 | 3 | 1,432 | 637 | $160 | 1 | 716 | 318 | $82 | $242 | 171 |
| 6 | 1,522 | 3 | 1,141 | 8 | 2,029 | 4 | 1,522 | 10 | 2,536 | 63 | 7,609 | 14,204 | $2,030 | 38 | 6,087 | 10,146 | $1,467 | $3,496 | 172 |
| 6 | 1,611 | 3 | 1,209 | 8 | 2,148 | 4 | 1,611 | 10 | 2,686 | 67 | 8,057 | 15,039 | $2,149 | 40 | 6,445 | 10,742 | $1,553 | $3,702 | 173 |
| 6 | 1,992 | 3 | 1,494 | 8 | 2,656 | 4 | 1,992 | 10 | 3,320 | 83 | 9,959 | 18,590 | $2,656 | 50 | 7,967 | 13,279 | $1,920 | $4,576 | 174 |
| 6 | 1,298 | 3 | 974 | 8 | 1,731 | 4 | 1,298 | 10 | 2,163 | 54 | 6,490 | 12,115 | $1,731 | 32 | 5,192 | 8,654 | $1,251 | $2,982 | 175 |
| 6 | 1,298 | 3 | 974 | 8 | 1,731 | 4 | 1,298 | 10 | 2,163 | 54 | 6,490 | 12,115 | $1,731 | 32 | 5,192 | 8,654 | $1,251 | $2,982 | 176 |
| 4 | 865 | 2 | 649 | 4 | 865 | 4 | 1,298 | 6 | 1,298 | 32 | 3,894 | 6,923 | $1,014 | 32 | 5,192 | 5,192 | $1,000 | $2,014 | 177 |
| 8 | 776 | 12 | 1,746 | 8 | 776 | 12 | 1,746 | 8 | 776 | 29 | 13,965 | 6,207 | $1,563 | 15 | 6,983 | 3,103 | $796 | $2,359 | 178 |
| 8 | 175 | 12 | 394 | 8 | 175 | 12 | 394 | 8 | 175 | 7 | 3,151 | 1,400 | $353 | 3 | 1,576 | 700 | $180 | $532 | 179 |
| 6 | 1,992 | 3 | 1,494 | 8 | 2,656 | 4 | 1,992 | 10 | 3,320 | 83 | 9,959 | 18,590 | $2,656 | 50 | 7,967 | 13,279 | $1,920 | $4,576 | 180 |
| 6 | 1,992 | 3 | 1,494 | 8 | 2,656 | 4 | 1,992 | 10 | 3,320 | 83 | 9,959 | 18,590 | $2,656 | 50 | 7,967 | 13,279 | $1,920 | $4,576 | 181 |
| 4 | 1,328 | 2 | 996 | 4 | 1,328 | 4 | 1,992 | 6 | 1,992 | 50 | 5,975 | 10,623 | $1,555 | 50 | 7,967 | 7,967 | $1,535 | $3,090 | 182 |
| 4 | 865 | 2 | 649 | 4 | 865 | 4 | 1,298 | 6 | 1,298 | 32 | 3,894 | 6,923 | $1,014 | 32 | 5,192 | 5,192 | $1,000 | $2,014 | 183 |
| 6 | 1,992 | 3 | 1,494 | 8 | 2,656 | 4 | 1,992 | 10 | 3,320 | 83 | 9,959 | 18,590 | $2,656 | 50 | 7,967 | 13,279 | $1,920 | $4,576 | 184 |
| 6 | 1,992 | 3 | 1,494 | 8 | 2,656 | 4 | 1,992 | 10 | 3,320 | 83 | 9,959 | 18,590 | $2,656 | 50 | 7,967 | 13,279 | $1,920 | $4,576 | 185 |
| 4 | 686 | 2 | 515 | 4 | 686 | 4 | 1,029 | 6 | 1,029 | 26 | 3,088 | 5,491 | $804 | 26 | 4,118 | 4,118 | $793 | $1,597 | 186 |
| 8 | 836 | 12 | 1,880 | 8 | 836 | 12 | 1,880 | 8 | 836 | 31 | 15,039 | 6,684 | $1,683 | 16 | 7,520 | 3,342 | $857 | $2,540 | 187 |
| 8 | 88 | 12 | 197 | 8 | 88 | 12 | 197 | 8 | 88 | 3 | 1,576 | 700 | $176 | 2 | 788 | 350 | $90 | $266 | 188 |
| 8 | 1,552 | 12 | 3,491 | 8 | 1,552 | 12 | 3,491 | 8 | 1,552 | 58 | 27,930 | 12,413 | $3,125 | 29 | 13,965 | 6,207 | $1,592 | $4,717 | 189 |
| 8 | 40 | 12 | 90 | 8 | 40 | 12 | 90 | 8 | 40 | 1 | 716 | 318 | $80 | 1 | 358 | 159 | $41 | $121 | 190 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 191 |
| 8 | 483 | 12 | 1,086 | 8 | 483 | 12 | 1,086 | 8 | 483 | 18 | 8,689 | 3,862 | $972 | 9 | 4,344 | 1,931 | $495 | $1,467 | 192 |
| 8 | 60 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 2 | 1,074 | 477 | $120 | 1 | 537 | 239 | $61 | $181 | 193 |
| 8 | 239 | 12 | 537 | 8 | 239 | 12 | 537 | 8 | 239 | 9 | 4,297 | 1,910 | $481 | 4 | 2,148 | 955 | $245 | $726 | 194 |
| 8 | 2,387 | 12 | 5,371 | 8 | 2,387 | 12 | 5,371 | 8 | 2,387 | 90 | 42,970 | 19,098 | $4,808 | 45 | 21,485 | 9,549 | $2,449 | $7,257 | 195 |
| 8 | 894 | 12 | 2,011 | 8 | 894 | 12 | 2,011 | 8 | 894 | 34 | 16,090 | 7,151 | $1,801 | 17 | 8,045 | 3,576 | $917 | $2,717 | 196 |
| 8 | 239 | 12 | 537 | 8 | 239 | 12 | 537 | 8 | 239 | 9 | 4,297 | 1,910 | $481 | 4 | 2,148 | 955 | $245 | $726 | 197 |
| 8 | 597 | 12 | 1,343 | 8 | 597 | 12 | 1,343 | 8 | 597 | 22 | 10,742 | 4,774 | $1,202 | 11 | 5,371 | 2,387 | $612 | $1,814 | 198 |
| 8 | 119 | 12 | 269 | 8 | 119 | 12 | 269 | 8 | 119 | 4 | 2,148 | 955 | $240 | 2 | 1,074 | 477 | $122 | $363 | 199 |
| 8 | 358 | 12 | 806 | 8 | 358 | 12 | 806 | 8 | 358 | 13 | 6,445 | 2,865 | $721 | 7 | 3,223 | 1,432 | $367 | $1,089 | 200 |
| 8 | 1,194 | 12 | 2,686 | 8 | 1,194 | 12 | 2,686 | 8 | 1,194 | 45 | 21,485 | 9,549 | $2,404 | 22 | 10,742 | 4,774 | $1,224 | $3,629 | 201 |
| 8 | 597 | 12 | 1,343 | 8 | 597 | 12 | 1,343 | 8 | 597 | 22 | 10,742 | 4,774 | $1,202 | 11 | 5,371 | 2,387 | $612 | $1,814 | 202 |
| 8 | 60 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 2 | 1,074 | 477 | $120 | 1 | 537 | 239 | $61 | $181 | 203 |
| 8 | 1,194 | 12 | 2,686 | 8 | 1,194 | 12 | 2,686 | 8 | 1,194 | 45 | 21,485 | 9,549 | $2,404 | 22 | 10,742 | 4,774 | $1,224 | $3,629 | 204 |
| 8 | 60 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 2 | 1,074 | 477 | $120 | 1 | 537 | 239 | $61 | $181 | 205 |
| 8 | 9 | 12 | 21 | 8 | 9 | 12 | 21 | 8 | 9 | 0 | 169 | 75 | $19 | 0 | 85 | 38 | $10 | $29 | 206 |
| 8 | 9 | 12 | 21 | 8 | 9 | 12 | 21 | 8 | 9 | 0 | 169 | 75 | $19 | 0 | 85 | 38 | $10 | $29 | 207 |
| 8 | 235 | 12 | 528 | 8 | 235 | 12 | 528 | 8 | 235 | 9 | 4,225 | 1,878 | $473 | 4 | 2,113 | 939 | $241 | $714 | 208 |
| 8 | 1,194 | 12 | 2,686 | 8 | 1,194 | 12 | 2,686 | 8 | 1,194 | 45 | 21,485 | 9,549 | $2,404 | 22 | 10,742 | 4,774 | $1,224 | $3,629 | 209 |
| 8 | 23 | 12 | 53 | 8 | 23 | 12 | 53 | 8 | 23 | 1 | 423 | 188 | $47 | 0 | 211 | 94 | $24 | $71 | 210 |
| 8 | 239 | 12 | 537 | 8 | 239 | 12 | 537 | 8 | 239 | 9 | 4,297 | 1,910 | $481 | 4 | 2,148 | 955 | $245 | $726 | 211 |
| 2 | 2 | 3 | 4 | 2 | 2 | 3 | 4 | 2 | 2 | 0 | 32 | 14 | $5 | 0 | 16 | 7 | $3 | $8 | 212 |
| 2 | 15 | 3 | 34 | 2 | 15 | 3 | 34 | 2 | 15 | 2 | 269 | 119 | $44 | 1 | 134 | 60 | $23 | $67 | 213 |
| 2 | 2 | 3 | 4 | 2 | 2 | 3 | 4 | 2 | 2 | 0 | 32 | 14 | $5 | 0 | 16 | 7 | $3 | $8 | 214 |
| 8 | 60 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 2 | 1,074 | 477 | $120 | 1 | 537 | 239 | $61 | $181 | 215 |
| 8 | 60 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 2 | 1,074 | 477 | $120 | 1 | 537 | 239 | $61 | $181 | 216 |
| 8 | 358 | 12 | 806 | 8 | 358 | 12 | 806 | 8 | 358 | 13 | 6,445 | 2,865 | $721 | 7 | 3,223 | 1,432 | $367 | $1,089 | 217 |
| 8 | 39 | 12 | 89 | 8 | 39 | 12 | 89 | 8 | 39 | 1 | 709 | 315 | $79 | 1 | 354 | 158 | $40 | $120 | 218 |
| 8 | 119 | 12 | 269 | 8 | 119 | 12 | 269 | 8 | 119 | 4 | 2,148 | 955 | $240 | 2 | 1,074 | 477 | $122 | $363 | 219 |
| 8 | 39 | 12 | 89 | 8 | 39 | 12 | 89 | 8 | 39 | 1 | 709 | 315 | $79 | 1 | 354 | 158 | $40 | $120 | 220 |
| 8 | 358 | 12 | 806 | 8 | 358 | 12 | 806 | 8 | 358 | 13 | 6,445 | 2,865 | $721 | 7 | 3,223 | 1,432 | $367 | $1,089 | 221 |
| 8 | 60 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 2 | 1,074 | 477 | $120 | 1 | 537 | 239 | $61 | $181 | 222 |
| 8 | 239 | 12 | 537 | 8 | 239 | 12 | 537 | 8 | 239 | 9 | 4,297 | 1,910 | $481 | 4 | 2,148 | 955 | $245 | $726 | 223 |
| 2 | 15 | 3 | 34 | 2 | 15 | 3 | 34 | 2 | 15 | 2 | 269 | 119 | $44 | 1 | 134 | 60 | $23 | $67 | 224 |
| 2 | 0 | 3 | 0 | 2 | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 225 |

3

| HVAC Item | HVAC Airside Equipment - General Information: Design/Site Designatio | Equip. Type | Field Data/Reference/(Location) | Area Served | Cooling Equipment Field Data/Reference/(Location) | Total Connected Load (kW) | Winter Demand kW/month | Intermed. Demand kW/month |
|---|---|---|---|---|---|---|---|---|
| 226 | B15 | Exhaust | EV-20 | 3rd Floor | N/A | 0.25 | 0.2 | 0.2 |
| 227 | B17 | Exhaust | Trane CUBA-163 (NIS) | Unknown | N/A | 1.49 | 1.1 | 1.1 |
| 228 | B18 | Exhaust | Trane CUBA-163 (NIS) | Unknown | N/A | 1.49 | 1.1 | 1.1 |
| 229 | B19 | Exhaust | Trane CUBA-163 (NIS) | Unknown | N/A | 1.49 | 1.1 | 1.1 |
| 230 | B20 | Exhaust | EV-23 (NIS) | 2nd Floor | N/A | 0.25 | 0.2 | 0.2 |
| 231 | B21 | Exhaust | EV-25 | 2nd Floor | N/A | 2.24 | 1.7 | 1.7 |
| 232 | B22 | Exhaust | EV-22 (NIS) | 2nd Floor | N/A | 1.49 | 1.1 | 1.1 |
| 233 | B23 | Exhaust | EV-103 | 2nd Floor | N/A | 0.37 | 0.3 | 0.3 |
| 234 | B24 | Exhaust | EV-102 | 2nd Floor | N/A | 0.19 | 0.1 | 0.1 |
| 235 | B25 | Exhaust | EV-84 (NIS) | 4th Floor | N/A | 0.37 | 0.3 | 0.3 |
| 236 | B26 | Exhaust | EV-100 (NIS) | Unknown | N/A | 0.00 | 0.0 | 0.0 |
| 237 | B28 | Exhaust | Dead Unit | Unknown | N/A | 0.00 | 0.0 | 0.0 |
| 238 | B33 | Exhaust | EV-25A | 2nd Floor | N/A | 0.37 | 0.3 | 0.3 |
| 239 | C2 | Exhaust | EV-127 | MR 23, 33, & 43 | N/A | 0.37 | 0.3 | 0.3 |
| 240 | C4 | Exhaust | EV-86 (NIS) | 1st Floor | N/A | 0.37 | 0.3 | 0.3 |
| 241 | C11 | Exhaust | EV-110 | 2nd Floor | N/A | 0.07 | 0.1 | 0.1 |
| 242 | C12 | Exhaust | EV-108 | 2nd Floor | N/A | 0.56 | 0.4 | 0.4 |
| 243 | C13 | Scrubber | Duall (Met-Pro) | Room 2D202 | N/A | 3.52 | 2.6 | 2.6 |
| 244 | C15 | Exhaust | EV-89 (NIS) | 1st Floor | N/A | 1.49 | 1.1 | 1.1 |
| 245 | C16 | Exhaust | EV-96 | 1st Floor | N/A | 0.37 | 0.3 | 0.3 |
| 246 | C17 | Exhaust | EV-88 | 1st Floor | N/A | 0.75 | 0.6 | 0.6 |
| 247 | D6 | Exhaust | EV-108A (NIS) | 2nd Floor | N/A | 0.56 | 0.4 | 0.4 |
| 248 | D11 | Exhaust | None (NIS) | Unknown | N/A | 0.19 | 0.1 | 0.1 |
| 249 | D12 | Exhaust | None (NIS) | 3rd Floor | N/A | 0.15 | 0.1 | 0.1 |
| 250 | D21 | Exhaust | EV-125 | 4D336 | N/A | 0.56 | 0.4 | 0.4 |
| 251 | E1 | Exhaust | RF-1 (American) | 3rd Floor (Guess) | N/A | 0.37 | 0.3 | 0.3 |
| 252 | E5 | Exhaust | None (NIS or Dead Unit ?) | Unknown | N/A | 0.00 | 0.0 | 0.0 |
| 253 | E10 | Exhaust | New York Blower (NIS or Dead ?) | Unknown | N/A | 0.00 | 0.0 | 0.0 |
| 254 | E12 | Exhaust | Dead Unit | Unknown | N/A | 0.00 | 0.0 | 0.0 |
| 255 | E18 | Exhaust | EV-73 | Basement | N/A | 0.56 | 0.4 | 0.4 |
| 256 | E22 | Exhaust | EV-73 (NIS) | 1st Floor | N/A | 0.25 | 0.2 | 0.2 |
| 257 | E23 | Exhaust | RF-2 | 3rd Floor (Guess) | N/A | 0.19 | 0.1 | 0.1 |
| 258 | E25 | Exhaust | RF-3 | 4th Floor (Guess) | N/A | 0.56 | 0.4 | 0.4 |
| 259 | E32 | Exhaust | None (NIS) | 3rd Floor (Guess) | N/A | 0.75 | 0.6 | 0.6 |
| 260 | E35 | Exhaust | RF-4 (NIS) | 4D336 | N/A | 0.75 | 0.6 | 0.6 |
| 261 | E36 | Exhaust | Dead Unit | Unknown | N/A | 0.00 | 0.0 | 0.0 |
| 262 | E37 | Exhaust | EV-101 | 1st Floor (Guess) | N/A | 0.37 | 0.3 | 0.3 |
| 263 | E39 | Exhaust | None | 3rd Floor (Guess) | N/A | 1.53 | 1.1 | 1.1 |
| 264 | E40 | Exhaust | None (NIS) | 3rd Floor (Guess) | N/A | 0.19 | 0.1 | 0.1 |
| 265 | - | Exhaust | EV-57 (Located in MR-12) | MR-12 | N/A | 0.04 | 0.0 | 0.0 |
| 266 | - | Exhaust | EV-58 (Located in MR-12) | MR-12 | N/A | 0.04 | 0.0 | 0.0 |
| 267 | - | Exhaust | EV-68 (Located in Substation #3) | Substation #3 | N/A | 0.19 | 0.1 | 0.1 |
| 268 | - | Exhaust | EV-79 (Located in Kitchen) | Kitchen exhaust system | N/A | 5.60 | 4.2 | 4.2 |
| 269 | - | Exhaust | EV-82 (Located in Substation #7) | Substation #7 | N/A | 0.75 | 0.6 | 0.6 |
| 270 | E40 | Exhaust | EV-98 (Located in Substation #2 & 6) | Substation #2 & 6 | N/A | 0.75 | 0.6 | 0.6 |
| 271 | CH-1 | Chiller | Trane (690 Tons) - Building 2706 | MCA Chilled Water | Tower CT-1 (Building 2706) | 538.0 | 0.0 | 80.7 |
| 272 | CH-2 | Chiller | Trane (690 Tons) - Building 2706 | MCA Chilled Water - Standb | Tower CT-1 (Building 2706) | 538.0 | 0.0 | 0.0 |
| 273 | CT-1 | Tower | B.A.C. (1380 Tons) - Building 2706 | MCA Condenser Water | Outdoor Air | 59.6 | 0.0 | 8.9 |
| 274 | CT-1 | Tower | Thermal Care(200 Tons)-Build 2700 Roof | Misc. Chillers & DX Equipme | Outdoor Air | 5.6 | 4.2 | 4.2 |
| 275 | CT-2 | Tower | Thermal Care(200 Tons)-Build 2700 Roof | Misc. Chillers & DX Equipme | Outdoor Air | 5.6 | 4.2 | 4.2 |
| 276 | CT-3 | Tower | B.A.C. (210 Tons) - Building 2700 Roof | Misc. Chillers & DX Equipme | Outdoor Air | 5.6 | 4.2 | 4.2 |
| 277 | CT-4 | Tower | B.A.C. (210 Tons) - Building 2700 Roof | Misc. Chillers & DX Equipme | Outdoor Air | 5.6 | 4.2 | 4.2 |
| 278 | CT-5 | Tower | B.A.C. - Building 2700 Roof | to be removed | N/A | 0.0 | 0.0 | 0.0 |
| 279 | CHWP-1 | Pump | Allis Chamers - Building 2706 | MCA Chilled Water | N/A | 74.6 | 0.0 | 11.2 |
| 280 | CHWP-2 | Pump | Allis Chamers - Building 2706 | MCA Chilled Water - Lag | N/A | 74.6 | 0.0 | 0.0 |
| 281 | CHWP-3 | Pump | Allis Chamers - Building 2706 | MCA Chilled Water - Standb | N/A | 74.6 | 0.0 | 0.0 |
| 282 | HWP-1 | Pump | Allis Chamers - Building 2706 | MCA Hot Water | N/A | 11.2 | 8.4 | 6.7 |
| 283 | HWP-2 | Pump | Allis Chamers - Building 2706 | MCA Hot Water - Lag | N/A | 11.2 | 8.4 | 6.7 |
| 284 | HWP-3 | Pump | Allis Chamers - Building 2706 | MCA Hot Water - Standby | N/A | 11.2 | 0.0 | 0.0 |
| 285 | CWP-1 | Pump | Allis Chamers - Building 2706 | MCA Condenser Water | N/A | 18.7 | 0.0 | 9.4 |
| 286 | CWP-2 | Pump | Allis Chamers - Building 2706 | MCA Condenser Water - La | N/A | 18.7 | 0.0 | 0.0 |
| 287 | CWP-3 | Pump | Allis Chamers - Building 2706 | MCA Cond. Wtr - Standby | N/A | 18.7 | 0.0 | 0.0 |
| 288 | CT1P-1 | Pump | PACO - Building 2700 | Cooling Tower #1 | N/A | 14.9 | 11.2 | 11.2 |
| 289 | CT1P-2 | Pump | PACO - Building 2700 | Cooling Tower #1 - Lag | N/A | 14.9 | 3.7 | 7.5 |
| 290 | CT2P-1 | Pump | PACO - Building 2700 | Cooling Tower #2 | N/A | 14.9 | 11.2 | 11.2 |
| 291 | CT2P-2 | Pump | PACO - Building 2700 | Cooling Tower #2 - Lag | N/A | 14.9 | 3.7 | 7.5 |
| 292 | CT3P-1 | Pump | PACO - Building 2700 | Cooling Tower #3 | N/A | 14.9 | 11.2 | 11.2 |
| 293 | CT3P-2 | Pump | PACO - Building 2700 | Cooling Tower #3 - Lag | N/A | 14.9 | 3.7 | 7.5 |
| 294 | CT4P-1 | Pump | PACO - Building 2700 | Cooling Tower #4 | N/A | 14.9 | 11.2 | 11.2 |
| 295 | CT4P-2 | Pump | PACO - Building 2700 | Cooling Tower #4 - Lag | N/A | 14.9 | 3.7 | 7.5 |
| 296 | FWP-1 | Pump | Aurora - Building 2700 | Boiler Feedwater | N/A | 18.7 | 14.0 | 14.0 |
| 297 | FWP-2 | Pump | Worthington - Building 2700 | Boiler Feedwater | N/A | 18.7 | 0.0 | 0.0 |
| 298 | FWP-3 | Pump | Ingersol Rand - Building 2700 | Boiler Feedwater | N/A | 18.7 | 0.0 | 0.0 |
| 299 | CP-1 | Pump | Aurora - Building 2700 | Condensate | N/A | 3.7 | 2.8 | 2.8 |
| 300 | CP-2 | Pump | Aurora - Building 2700 | Condensate | N/A | 3.7 | 2.8 | 2.8 |



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# FT. MONMOUTH, DEPARTMENT OF THE ARMY
# BUILDING 2700 ELECTRIC MODEL - ALL FLOORS & BUILDING 2706 HVAC EQUIPMENT

### TABLE 5.6.2.2

| Area Served | Cooling Equipment Field Data/Reference/(Location) | Total Connected Load (kW) | Winter Demand kW/month | Intermed. Demand kW/month | Summer Demand kW/month | Winter Billing Months Off-Peak hrs/day | Winter Off-Peak kWh/Mo | Winter On-Peak hrs/day | Winter On-Peak kWh/Mo | Intermediate Billing Months Off-Peak hrs/day | Intermediate Off-Peak kWh/Mo | Intermediate On-Peak hrs/day | Intermediate On-Peak kWh/Mo | Summer Billing Months Off-Peak hrs/day | Summer Off-Peak kWh/Mo | Summer On-Peak hrs/day | Summer On-Peak kWh/Mo | Demand kW/Yr. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ɔor | N/A | 0.25 | 0.2 | 0.2 | 0.2 | 12 | 89 | 8 | 39 | 12 | 89 | 8 | 39 | 12 | 89 | 8 | 39 | 1 |
| wn | N/A | 1.49 | 1.1 | 1.1 | 1.1 | 3 | 134 | 2 | 60 | 3 | 134 | 2 | 60 | 3 | 134 | 2 | 60 | 9 |
| wn | N/A | 1.49 | 1.1 | 1.1 | 1.1 | 3 | 134 | 2 | 60 | 3 | 134 | 2 | 60 | 3 | 134 | 2 | 60 | 9 |
| wn | N/A | 1.49 | 1.1 | 1.1 | 1.1 | 3 | 134 | 2 | 60 | 3 | 134 | 2 | 60 | 3 | 134 | 2 | 60 | 9 |
| ɔor | N/A | 0.25 | 0.2 | 0.2 | 0.2 | 3 | 22 | 2 | 10 | 3 | 22 | 2 | 10 | 3 | 22 | 2 | 10 | 1 |
| ɔor | N/A | 2.24 | 1.7 | 1.7 | 1.7 | 12 | 806 | 8 | 358 | 12 | 806 | 8 | 358 | 12 | 806 | 8 | 358 | 13 |
| ɔor | N/A | 1.49 | 1.1 | 1.1 | 1.1 | 3 | 134 | 2 | 60 | 3 | 134 | 2 | 60 | 3 | 134 | 2 | 60 | 9 |
| ɔor | N/A | 0.37 | 0.3 | 0.3 | 0.3 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 2 |
| oor | N/A | 0.19 | 0.1 | 0.1 | 0.1 | 12 | 67 | 8 | 30 | 12 | 67 | 8 | 30 | 12 | 67 | 8 | 30 | 1 |
| ɔor | N/A | 0.37 | 0.3 | 0.3 | 0.3 | 3 | 34 | 2 | 15 | 3 | 34 | 2 | 15 | 3 | 34 | 2 | 15 | 2 |
| wn | N/A | 0.00 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| wn | N/A | 0.00 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| oor | N/A | 0.37 | 0.3 | 0.3 | 0.3 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 2 |
| 3, 33, & 43 | N/A | 0.37 | 0.3 | 0.3 | 0.3 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 2 |
| ɔor | N/A | 0.37 | 0.3 | 0.3 | 0.3 | 3 | 34 | 2 | 15 | 3 | 34 | 2 | 15 | 3 | 34 | 2 | 15 | 2 |
| oor | N/A | 0.07 | 0.1 | 0.1 | 0.1 | 12 | 27 | 8 | 12 | 12 | 27 | 8 | 12 | 12 | 27 | 8 | 12 | 0 |
| oor | N/A | 0.56 | 0.4 | 0.4 | 0.4 | 12 | 201 | 8 | 90 | 12 | 201 | 8 | 90 | 12 | 201 | 8 | 90 | 3 |
| 2D202 | N/A | 3.52 | 2.6 | 2.6 | 2.6 | 12 | 1,268 | 8 | 563 | 12 | 1,268 | 8 | 563 | 12 | 1,268 | 8 | 563 | 21 |
| ɔor | N/A | 1.49 | 1.1 | 1.1 | 1.1 | 3 | 134 | 2 | 60 | 3 | 134 | 2 | 60 | 3 | 134 | 2 | 60 | 9 |
| ɔor | N/A | 0.37 | 0.3 | 0.3 | 0.3 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 2 |
| ɔor | N/A | 0.75 | 0.6 | 0.6 | 0.6 | 12 | 269 | 8 | 119 | 12 | 269 | 8 | 119 | 12 | 269 | 8 | 119 | 4 |
| ɔor | N/A | 0.56 | 0.4 | 0.4 | 0.4 | 3 | 50 | 2 | 22 | 3 | 50 | 2 | 22 | 3 | 50 | 2 | 22 | 3 |
| wn | N/A | 0.19 | 0.1 | 0.1 | 0.1 | 3 | 17 | 2 | 8 | 3 | 17 | 2 | 8 | 3 | 17 | 2 | 8 | 1 |
| ɔor | N/A | 0.15 | 0.1 | 0.1 | 0.1 | 3 | 13 | 2 | 6 | 3 | 13 | 2 | 6 | 3 | 13 | 2 | 6 | 1 |
| | N/A | 0.56 | 0.4 | 0.4 | 0.4 | 12 | 201 | 8 | 90 | 12 | 201 | 8 | 90 | 12 | 201 | 8 | 90 | 3 |
| or (Guess) | N/A | 0.37 | 0.3 | 0.3 | 0.3 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 2 |
| wn | N/A | 0.00 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| wn | N/A | 0.00 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| wn | N/A | 0.00 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ient | N/A | 0.56 | 0.4 | 0.4 | 0.4 | 12 | 201 | 8 | 90 | 12 | 201 | 8 | 90 | 12 | 201 | 8 | 90 | 3 |
| ɔor | N/A | 0.25 | 0.2 | 0.2 | 0.2 | 3 | 22 | 2 | 10 | 3 | 22 | 2 | 10 | 3 | 22 | 2 | 10 | 1 |
| or (Guess) | N/A | 0.19 | 0.1 | 0.1 | 0.1 | 12 | 67 | 8 | 30 | 12 | 67 | 8 | 30 | 12 | 67 | 8 | 30 | 1 |
| or (Guess) | N/A | 0.56 | 0.4 | 0.4 | 0.4 | 12 | 201 | 8 | 90 | 12 | 201 | 8 | 90 | 12 | 201 | 8 | 90 | 3 |
| or (Guess) | N/A | 0.75 | 0.6 | 0.6 | 0.6 | 3 | 67 | 2 | 30 | 3 | 67 | 2 | 30 | 3 | 67 | 2 | 30 | 4 |
| | N/A | 0.75 | 0.6 | 0.6 | 0.6 | 3 | 67 | 2 | 30 | 3 | 67 | 2 | 30 | 3 | 67 | 2 | 30 | 4 |
| wn | N/A | 0.00 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| or (Guess) | N/A | 0.37 | 0.3 | 0.3 | 0.3 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 2 |
| or (Guess) | N/A | 1.53 | 1.1 | 1.1 | 1.1 | 12 | 549 | 8 | 244 | 12 | 549 | 8 | 244 | 12 | 549 | 8 | 244 | 9 |
| or (Guess) | N/A | 0.19 | 0.1 | 0.1 | 0.1 | 3 | 17 | 2 | 8 | 3 | 17 | 2 | 8 | 3 | 17 | 2 | 8 | 1 |
| | N/A | 0.04 | 0.0 | 0.0 | 0.0 | 3 | 3 | 2 | 1 | 3 | 3 | 2 | 1 | 3 | 3 | 2 | 1 | 0 |
| | N/A | 0.04 | 0.0 | 0.0 | 0.0 | 3 | 3 | 2 | 1 | 3 | 3 | 2 | 1 | 3 | 3 | 2 | 1 | 0 |
| ition #3 | N/A | 0.19 | 0.1 | 0.1 | 0.1 | 3 | 17 | 2 | 7 | 3 | 17 | 2 | 7 | 3 | 17 | 2 | 7 | 1 |
| exhaust system | N/A | 5.60 | 4.2 | 4.2 | 4.2 | 3 | 504 | 2 | 224 | 3 | 504 | 2 | 224 | 3 | 504 | 2 | 224 | 34 |
| ition #7 | N/A | 0.75 | 0.6 | 0.6 | 0.6 | 3 | 67 | 2 | 30 | 3 | 67 | 2 | 30 | 3 | 67 | 2 | 30 | 4 |
| ition #2 & 6 | N/A | 0.75 | 0.6 | 0.6 | 0.6 | 3 | 67 | 2 | 30 | 3 | 67 | 2 | 30 | 3 | 67 | 2 | 30 | 4 |
| hilled Water | Tower CT-1 (Building 2706) | 538.0 | 0.0 | 80.7 | 403.5 | 0 | 0 | 0 | 0 | 1 | 16,140 | 2 | 21,520 | 3 | 48,420 | 6 | 64,560 | 323 |
| hilled Water - Standb | Tower CT-1 (Building 2706) | 538.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ondenser Water | Outdoor Air | 59.6 | 0.0 | 8.9 | 44.7 | 0 | 0 | 0 | 0 | 1 | 1,788 | 4 | 4,768 | 8 | 14,304 | 8 | 9,536 | 36 |
| hillers & DX Equipme | Outdoor Air | 5.6 | 4.2 | 4.2 | 4.2 | 2 | 336 | 4 | 448 | 4 | 672 | 6 | 672 | 6 | 1,008 | 8 | 896 | 34 |
| hillers & DX Equipme | Outdoor Air | 5.6 | 4.2 | 4.2 | 4.2 | 2 | 336 | 4 | 448 | 4 | 672 | 6 | 672 | 6 | 1,008 | 8 | 896 | 34 |
| hillers & DX Equipme | Outdoor Air | 5.6 | 4.2 | 4.2 | 4.2 | 2 | 336 | 4 | 448 | 4 | 672 | 6 | 672 | 6 | 1,008 | 8 | 896 | 34 |
| hillers & DX Equipme | Outdoor Air | 5.6 | 4.2 | 4.2 | 4.2 | 2 | 336 | 4 | 448 | 4 | 672 | 6 | 672 | 6 | 1,008 | 8 | 896 | 34 |
| emoved | N/A | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| hilled Water | N/A | 74.6 | 0.0 | 11.2 | 56.0 | 0.0 | 0 | 0 | 0 | 4 | 8,952 | 3 | 4,476 | 12 | 26,856 | 8 | 11,936 | 45 |
| hilled Water - Lag | N/A | 74.6 | 0.0 | 0.0 | 56.0 | 0.0 | 0 | 0 | 0 | 1 | 2,238 | 1 | 1,492 | 3 | 6,714 | 2 | 2,984 | 0 |
| hilled Water - Standb | N/A | 74.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| lot Water | N/A | 11.2 | 8.4 | 6.7 | 0.0 | 12.0 | 4,032 | 8 | 1,792 | 9 | 3,024 | 6 | 1,344 | 0 | 0 | 0 | 0 | 60 |
| lot Water - Lag | N/A | 11.2 | 8.4 | 6.7 | 0.0 | 4.0 | 1,344 | 2 | 448 | 3 | 1,008 | 2 | 448 | 0 | 0 | 0 | 0 | 60 |
| lot Water - Standby | N/A | 11.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ondenser Water | N/A | 18.7 | 0.0 | 9.4 | 14.0 | 0.0 | 0 | 0 | 0 | 6 | 3,366 | 8 | 2,992 | 10 | 5,610 | 12 | 4,488 | 37 |
| ondenser Water - La | N/A | 18.7 | 0.0 | 0.0 | 14.0 | 0.0 | 0 | 0 | 0 | 1 | 561 | 1 | 374 | 3 | 1,683 | 4 | 1,496 | 0 |
| ond Wtr - Standby | N/A | 18.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| g Tower #1 | N/A | 14.9 | 11.2 | 11.2 | 11.2 | 12 | 5,364 | 8 | 2,384 | 12 | 5,364 | 8 | 2,384 | 12 | 5,364 | 8 | 2,384 | 89 |
| g Tower #1 - Lag | N/A | 14.9 | 3.7 | 7.5 | 8.9 | 1 | 447 | 1 | 298 | 3 | 1,341 | 2 | 596 | 4 | 1,788 | 3 | 894 | 45 |
| g Tower #2 | N/A | 14.9 | 11.2 | 11.2 | 11.2 | 12 | 5,364 | 8 | 2,384 | 12 | 5,364 | 8 | 2,384 | 12 | 5,364 | 8 | 2,384 | 89 |
| g Tower #2 - Lag | N/A | 14.9 | 3.7 | 7.5 | 8.9 | 1 | 447 | 1 | 298 | 3 | 1,341 | 2 | 596 | 4 | 1,788 | 3 | 894 | 45 |
| g Tower #3 | N/A | 14.9 | 11.2 | 11.2 | 11.2 | 12 | 5,364 | 8 | 2,384 | 12 | 5,364 | 8 | 2,384 | 12 | 5,364 | 8 | 2,384 | 89 |
| g Tower #3 - Lag | N/A | 14.9 | 3.7 | 7.5 | 8.9 | 1 | 447 | 1 | 298 | 3 | 1,341 | 2 | 596 | 4 | 1,788 | 3 | 894 | 45 |
| g Tower #4 | N/A | 14.9 | 11.2 | 11.2 | 11.2 | 12 | 5,364 | 8 | 2,384 | 12 | 5,364 | 8 | 2,384 | 12 | 5,364 | 8 | 2,384 | 89 |
| g Tower #4 - Lag | N/A | 14.9 | 3.7 | 7.5 | 8.9 | 1 | 447 | 1 | 298 | 3 | 1,341 | 2 | 596 | 4 | 1,788 | 3 | 894 | 45 |
| Feedwater | N/A | 18.7 | 14.0 | 14.0 | 14.0 | 12 | 6,732 | 8 | 2,992 | 12 | 6,732 | 8 | 2,992 | 12 | 6,732 | 8 | 2,992 | 112 |
| Feedwater | N/A | 18.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Feedwater | N/A | 18.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| nsate | N/A | 3.7 | 2.8 | 2.8 | 2.8 | 3.0 | 333 | 2 | 148 | 3 | 333 | 2 | 148 | 3 | 333 | 2 | 148 | 22 |
| nsate | N/A | 3.7 | 2.8 | 2.8 | 2.8 | 3.0 | 333 | 2 | 148 | 3 | 333 | 2 | 148 | 3 | 333 | 2 | 148 | 22 |

2

## ENT OF THE ARMY
## S & BUILDING 2706 HVAC EQUIPMENT

| nths | Intermediate Billing Months | | | | Summer Billing Months | | | | Non-Summer | | | | Summer | | | | Annual | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| n-Peak | Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | | | | | | | | | | |
| kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | Demand kW/Yr. | Off-Peak KWH/Yr. | On-Peak KWH/Yr. | Cost $ | Demand kW/Yr. | Off-Peak KWH/Yr. | On-Peak KWH/Yr. | Cost $ | Cost $ | No. |
| 39 | 12 | 89 | 8 | 39 | 12 | 89 | 8 | 39 | 1 | 709 | 315 | $79 | 1 | 354 | 158 | $40 | $120 | 226 |
| 60 | 3 | 134 | 2 | 60 | 3 | 134 | 2 | 60 | 9 | 1,074 | 477 | $176 | 4 | 537 | 239 | $92 | $268 | 227 |
| 60 | 3 | 134 | 2 | 60 | 3 | 134 | 2 | 60 | 9 | 1,074 | 477 | $176 | 4 | 537 | 239 | $92 | $268 | 228 |
| 60 | 3 | 134 | 2 | 60 | 3 | 134 | 2 | 60 | 9 | 1,074 | 477 | $176 | 4 | 537 | 239 | $92 | $268 | 229 |
| 10 | 3 | 22 | 2 | 10 | 3 | 22 | 2 | 10 | 1 | 177 | 79 | $29 | 1 | 89 | 39 | $15 | $44 | 230 |
| 358 | 12 | 806 | 8 | 358 | 12 | 806 | 8 | 358 | 13 | 6,445 | 2,865 | $721 | 7 | 3,223 | 1,432 | $367 | $1,089 | 231 |
| 60 | 3 | 134 | 2 | 60 | 3 | 134 | 2 | 60 | 9 | 1,074 | 477 | $176 | 4 | 537 | 239 | $92 | $268 | 232 |
| 60 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 2 | 1,074 | 477 | $120 | 1 | 537 | 239 | $61 | $181 | 233 |
| 30 | 12 | 67 | 8 | 30 | 12 | 67 | 8 | 30 | 1 | 537 | 239 | $60 | 1 | 269 | 119 | $31 | $91 | 234 |
| 15 | 3 | 34 | 2 | 15 | 3 | 34 | 2 | 15 | 2 | 269 | 119 | $44 | 1 | 134 | 60 | $23 | $67 | 235 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 236 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 237 |
| 60 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 2 | 1,074 | 477 | $120 | 1 | 537 | 239 | $61 | $181 | 238 |
| 60 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 2 | 1,074 | 477 | $120 | 1 | 537 | 239 | $61 | $181 | 239 |
| 15 | 3 | 34 | 2 | 15 | 3 | 34 | 2 | 15 | 2 | 269 | 119 | $44 | 1 | 134 | 60 | $23 | $67 | 240 |
| 12 | 12 | 27 | 8 | 12 | 12 | 27 | 8 | 12 | 0 | 215 | 95 | $24 | 0 | 107 | 48 | $12 | $36 | 241 |
| 90 | 12 | 201 | 8 | 90 | 12 | 201 | 8 | 90 | 3 | 1,611 | 716 | $180 | 2 | 806 | 358 | $92 | $272 | 242 |
| 563 | 12 | 1,268 | 8 | 563 | 12 | 1,268 | 8 | 563 | 21 | 10,141 | 4,507 | $1,135 | 11 | 5,070 | 2,253 | $578 | $1,713 | 243 |
| 60 | 3 | 134 | 2 | 60 | 3 | 134 | 2 | 60 | 9 | 1,074 | 477 | $176 | 4 | 537 | 239 | $92 | $268 | 244 |
| 60 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 2 | 1,074 | 477 | $120 | 1 | 537 | 239 | $61 | $181 | 245 |
| 119 | 12 | 269 | 8 | 119 | 12 | 269 | 8 | 119 | 4 | 2,148 | 955 | $240 | 2 | 1,074 | 477 | $122 | $363 | 246 |
| 22 | 3 | 50 | 2 | 22 | 3 | 50 | 2 | 22 | 3 | 403 | 179 | $66 | 2 | 201 | 90 | $35 | $101 | 247 |
| 8 | 3 | 17 | 2 | 8 | 3 | 17 | 2 | 8 | 1 | 137 | 61 | $22 | 1 | 69 | 31 | $12 | $34 | 248 |
| 6 | 3 | 13 | 2 | 6 | 3 | 13 | 2 | 6 | 1 | 106 | 47 | $17 | 0 | 53 | 23 | $9 | $26 | 249 |
| 90 | 12 | 201 | 8 | 90 | 12 | 201 | 8 | 90 | 3 | 1,611 | 716 | $180 | 2 | 806 | 358 | $92 | $272 | 250 |
| 60 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 2 | 1,074 | 477 | $120 | 1 | 537 | 239 | $61 | $181 | 251 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 252 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 253 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 254 |
| 90 | 12 | 201 | 8 | 90 | 12 | 201 | 8 | 90 | 3 | 1,611 | 716 | $180 | 2 | 806 | 358 | $92 | $272 | 255 |
| 10 | 3 | 22 | 2 | 10 | 3 | 22 | 2 | 10 | 1 | 177 | 79 | $29 | 1 | 89 | 39 | $15 | $44 | 256 |
| 30 | 12 | 67 | 8 | 30 | 12 | 67 | 8 | 30 | 1 | 537 | 239 | $60 | 1 | 269 | 119 | $31 | $91 | 257 |
| 90 | 12 | 201 | 8 | 90 | 12 | 201 | 8 | 90 | 3 | 1,611 | 716 | $180 | 2 | 806 | 358 | $92 | $272 | 258 |
| 30 | 3 | 67 | 2 | 30 | 3 | 67 | 2 | 30 | 4 | 537 | 239 | $88 | 2 | 269 | 119 | $46 | $134 | 259 |
| 30 | 3 | 67 | 2 | 30 | 3 | 67 | 2 | 30 | 4 | 537 | 239 | $88 | 2 | 269 | 119 | $46 | $134 | 260 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 261 |
| 60 | 12 | 134 | 8 | 60 | 12 | 134 | 8 | 60 | 2 | 1,074 | 477 | $120 | 1 | 537 | 239 | $61 | $181 | 262 |
| 244 | 12 | 549 | 8 | 244 | 12 | 549 | 8 | 244 | 9 | 4,394 | 1,953 | $492 | 5 | 2,197 | 977 | $250 | $742 | 263 |
| 8 | 3 | 17 | 2 | 8 | 3 | 17 | 2 | 8 | 1 | 137 | 61 | $22 | 1 | 69 | 31 | $12 | $34 | 264 |
| 1 | 3 | 3 | 2 | 1 | 3 | 3 | 2 | 1 | 0 | 27 | 12 | $4 | 0 | 13 | 6 | $2 | $7 | 265 |
| 1 | 3 | 3 | 2 | 1 | 3 | 3 | 2 | 1 | 0 | 27 | 12 | $4 | 0 | 13 | 6 | $2 | $7 | 266 |
| 7 | 3 | 17 | 2 | 7 | 3 | 17 | 2 | 7 | 1 | 134 | 60 | $22 | 1 | 67 | 30 | $12 | $34 | 267 |
| 224 | 3 | 504 | 2 | 224 | 3 | 504 | 2 | 224 | 34 | 4,028 | 1,790 | $660 | 17 | 2,014 | 895 | $346 | $1,006 | 268 |
| 30 | 3 | 67 | 2 | 30 | 3 | 67 | 2 | 30 | 4 | 537 | 239 | $88 | 2 | 269 | 119 | $46 | $134 | 269 |
| 30 | 3 | 67 | 2 | 30 | 3 | 67 | 2 | 30 | 4 | 537 | 239 | $88 | 2 | 269 | 119 | $46 | $134 | 270 |
| 0 | 1 | 16,140 | 2 | 21,520 | 3 | 48,420 | 6 | 64,560 | 323 | 64,560 | 86,080 | $12,941 | 1,614 | 193,680 | 258,240 | $45,710 | $58,650 | 271 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 272 |
| 0 | 1 | 1,788 | 4 | 4,768 | 8 | 14,304 | 8 | 9,536 | 36 | 7,152 | 19,072 | $2,123 | 179 | 57,216 | 38,144 | $7,992 | $10,115 | 273 |
| 448 | 4 | 672 | 6 | 672 | 6 | 1,008 | 8 | 896 | 34 | 4,032 | 4,480 | $855 | 17 | 4,032 | 3,584 | $667 | $1,522 | 274 |
| 448 | 4 | 672 | 6 | 672 | 6 | 1,008 | 8 | 896 | 34 | 4,032 | 4,480 | $855 | 17 | 4,032 | 3,584 | $667 | $1,522 | 275 |
| 448 | 4 | 672 | 6 | 672 | 6 | 1,008 | 8 | 896 | 34 | 4,032 | 4,480 | $855 | 17 | 4,032 | 3,584 | $667 | $1,522 | 276 |
| 448 | 4 | 672 | 6 | 672 | 6 | 1,008 | 8 | 896 | 34 | 4,032 | 4,480 | $855 | 17 | 4,032 | 3,584 | $667 | $1,522 | 277 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 278 |
| 0 | 4 | 8,952 | 3 | 4,476 | 12 | 26,856 | 8 | 11,936 | 45 | 35,808 | 17,904 | $3,903 | 224 | 107,424 | 47,744 | $12,243 | $16,146 | 279 |
| 0 | 1 | 2,238 | 1 | 1,492 | 3 | 6,714 | 2 | 2,984 | 0 | 8,952 | 5,968 | $991 | 224 | 26,856 | 11,936 | $4,608 | $5,599 | 280 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 281 |
| 1,792 | 9 | 3,024 | 6 | 1,344 | 0 | 0 | 0 | 0 | 60 | 28,224 | 12,544 | $3,172 | 0 | 0 | 0 | $0 | $3,172 | 282 |
| 448 | 3 | 1,008 | 2 | 448 | 0 | 0 | 0 | 0 | 60 | 9,408 | 3,584 | $1,349 | 0 | 0 | 0 | $0 | $1,349 | 283 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 284 |
| 0 | 6 | 3,366 | 8 | 2,992 | 10 | 5,610 | 12 | 4,488 | 37 | 13,464 | 11,968 | $2,017 | 56 | 22,440 | 17,952 | $3,222 | $5,239 | 285 |
| 0 | 1 | 561 | 1 | 374 | 3 | 1,683 | 4 | 1,496 | 0 | 2,244 | 1,496 | $248 | 56 | 6,732 | 5,984 | $1,372 | $1,620 | 286 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 287 |
| 2,384 | 12 | 5,364 | 8 | 2,384 | 12 | 5,364 | 8 | 2,384 | 89 | 42,912 | 19,072 | $4,802 | 45 | 21,456 | 9,536 | $2,445 | $7,247 | 288 |
| 298 | 3 | 1,341 | 2 | 596 | 4 | 1,788 | 3 | 894 | 45 | 7,152 | 3,576 | $1,077 | 36 | 7,152 | 3,576 | $1,036 | $2,113 | 289 |
| 2,384 | 12 | 5,364 | 8 | 2,384 | 12 | 5,364 | 8 | 2,384 | 89 | 42,912 | 19,072 | $4,802 | 45 | 21,456 | 9,536 | $2,445 | $7,247 | 290 |
| 298 | 3 | 1,341 | 2 | 596 | 4 | 1,788 | 3 | 894 | 45 | 7,152 | 3,576 | $1,077 | 36 | 7,152 | 3,576 | $1,036 | $2,113 | 291 |
| 2,384 | 12 | 5,364 | 8 | 2,384 | 12 | 5,364 | 8 | 2,384 | 89 | 42,912 | 19,072 | $4,802 | 45 | 21,456 | 9,536 | $2,445 | $7,247 | 292 |
| 298 | 3 | 1,341 | 2 | 596 | 4 | 1,788 | 3 | 894 | 45 | 7,152 | 3,576 | $1,077 | 36 | 7,152 | 3,576 | $1,036 | $2,113 | 293 |
| 2,384 | 12 | 5,364 | 8 | 2,384 | 12 | 5,364 | 8 | 2,384 | 89 | 42,912 | 19,072 | $4,802 | 45 | 21,456 | 9,536 | $2,445 | $7,247 | 294 |
| 298 | 3 | 1,341 | 2 | 596 | 4 | 1,788 | 3 | 894 | 45 | 7,152 | 3,576 | $1,077 | 36 | 7,152 | 3,576 | $1,036 | $2,113 | 295 |
| 2,992 | 12 | 6,732 | 8 | 2,992 | 12 | 6,732 | 8 | 2,992 | 112 | 53,856 | 23,936 | $6,027 | 56 | 26,928 | 11,968 | $3,069 | $9,096 | 296 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 297 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 298 |
| 148 | 3 | 333 | 2 | 148 | 3 | 333 | 2 | 148 | 22 | 2,664 | 1,184 | $436 | 11 | 1,332 | 592 | $229 | $665 | 299 |
| 148 | 3 | 333 | 2 | 148 | 3 | 333 | 2 | 148 | 22 | 2,664 | 1,184 | $436 | 11 | 1,332 | 592 | $229 | $665 | 300 |

③

| HVAC Item | HVAC Airside Equipment - General Information: Design/Site Designatio | Equip. Type | Field Data/Reference/(Location) | Area Served | Cooling Equipment Field Data/Reference/(Location) | Total Connected Load (kW) | Winter Demand kW/month | Intermed. Demand kW/month | Sum Dem kW/n |
|---|---|---|---|---|---|---|---|---|---|
| 301 | CP-7 | Pump | Aurora - Building 2700 | Condensate | N/A | 3.7 | 2.8 | 2.8 | |
| 302 | CP-8 | Pump | Aurora - Building 2700 | Condensate | N/A | 3.7 | 2.8 | 2.8 | |
| 303 | CP-1 (New) | Pump | unknown - Building 2706 | Condensate | N/A | 4.4 | 3.3 | 3.3 | |
| 304 | Misc | Pumps | unknown - Building 2706 | Various | N/A | 14.9 | 11.2 | 11.2 | |
| 305 | - | (4)Coolers | unknown - Building 2700 Cafeteria | Cafeteria | Condenser | 3.7 | 2.8 | 2.8 | |
| 306 | - | Refrigerato | unknown - Building 2700 Cafeteria | Cafeteria | Condenser | 1.5 | 1.1 | 1.1 | |
| 307 | - | Refrigerato | unknown - Building 2700 Cafeteria | Cafeteria | Condenser | 0.8 | 0.6 | 0.6 | |
| 308 | - | Freezer | unknown - Building 2700 Cafeteria | Cafeteria | Condenser | 1.2 | 0.9 | 0.9 | |
| 309 | - | Proc Chille | Edwards - Building 2700 Roof | unknown process | Condenser | 11.2 | 8.4 | 8.4 | |
| 310 | - | Lighting | unknown - Building 2700 | Basement Level | N/A | 126.0 | 75.6 | 75.6 | |
| 311 | - | Lighting | unknown - Building 2700 | First/Mezzanine Floor Levels | N/A | 349.0 | 209.4 | 209.4 | |
| 312 | - | Lighting | unknown - Building 2700 | Second Floor Level | N/A | 423.0 | 253.8 | 253.8 | |
| 313 | - | Lighting | unknown - Building 2700 | Third Floor Level | N/A | 414.0 | 248.4 | 248.4 | |
| 314 | - | Lighting | unknown - Building 2700 | Fourth Floor Level | N/A | 492.0 | 295.2 | 295.2 | |
| 315 | - | Misc Equi | unknown - Building 2700 | Basement Level | N/A | 100.0 | 25.0 | 25.0 | |
| 316 | - | Misc Equi | unknown - Building 2700 | First/Mezzanine Floor Levels | N/A | 360.0 | 90.0 | 90.0 | |
| 317 | - | Misc. Equi | unknown - Building 2700 | Second Floor Level | N/A | 609.0 | 152.3 | 152.3 | |
| 318 | - | Misc. Equi | unknown - Building 2700 | Third Floor Level | N/A | 413.0 | 103.3 | 103.3 | |
| 319 | - | Misc Equi | unknown - Building 2700 | Fourth Floor Level | N/A | 676.0 | 169.0 | 169.0 | |
| | | | | TOTALS | | 7,592 | 2,642 | 3,156 | |

Note The total connected kW loads for the MCA system building HVAC equipment do not include the equivalent tons of cooling shown in Section 3. The chiller incorporates these loads.

The Hope Road/Charles Wood electric billing data is shown at the right for comparison to the data calculated for Building 2700

*Historical Billing Demand Average*

| | Winter | Intermediate | Sun |
|---|---|---|---|
| | [illegible] | 4,701 | |
| | 4,726 | 4,957 | |
| | 4,692 | 4,462 | |
| | 4,676 | [illegible] | |
| Avg | 4,709 | 4,751 | |
| Totals | 18,834 | [illegible] | |

Winter Months: October, November, December, January, February, March, April, May
Summer Months: June, July, August, September

Winter Months October, November, December, January, February, March, April, May
Summer Months June, July, August, September

| | Winter | Summer |
|---|---|---|
| Incremental Demand Cost, $/kW | $8.31 | $9.22 |
| Off-Peak Incremental Usage Cost, $/kWh | $0.062 | $0.063 |
| On-Peak Incremental Usage Cost, $/kWh | $0.072 | $0.072 |

Incremental Demand Cost, $/kW
Off-Peak Incremental Usage Cost, $/kWh
On-Peak Incremental Usage Cost, $/kWh

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# FT. MONMOUTH, DEPARTMENT OF THE ARMY
# BUILDING 2700 ELECTRIC MODEL - ALL FLOORS & BUILDING 2706 HVAC EQUIPMENT

## TABLE 5.6.2.2

| | Cooling Equipment Field Data/Reference/(Location) | Total Connected Load (kW) | Winter Demand kW/month | Intermed. Demand kW/month | Summer Demand kW/month | Winter Billing Months Off-Peak hrs/day | Winter Off-Peak kWh/Mo | Winter On-Peak hrs/day | Winter On-Peak kWh/Mo |
|---|---|---|---|---|---|---|---|---|---|
| | N/A | 3 7 | 2.8 | 2 8 | 2 8 | 3 0 | 333 | 2 | 148 |
| | N/A | 3 7 | 2 8 | 2 8 | 2 8 | 3 0 | 333 | 2 | 148 |
| | N/A | 4 4 | 3 3 | 3 3 | 3 3 | 3 0 | 396 | 2 | 176 |
| | N/A | 14 9 | 11 2 | 11 2 | 11 2 | 3 0 | 1 341 | 2 | 596 |
| | Condenser | 3.7 | 2.8 | 2 8 | 2.8 | 12 | 1,332 | 8 | 592 |
| | Condenser | 1.5 | 1.1 | 1 1 | 1 1 | 12 | 540 | 8 | 240 |
| | Condenser | 0 8 | 0.6 | 0 6 | 0 6 | 12 | 270 | 8 | 120 |
| | Condenser | 1.2 | 0.9 | 0 9 | 0.9 | 12 | 432 | 8 | 192 |
| | Condenser | 11 2 | 8 4 | 8 4 | 8 4 | 10 | 3 360 | 8 | 1 792 |
| | N/A | 126.0 | 75 6 | 75 6 | 75 6 | 2 | 7,560 | 8 | 20,160 |
| els | N/A | 349 0 | 209 4 | 209 4 | 209 4 | 2 | 20,940 | 8 | 55,840 |
| | N/A | 423.0 | 253 8 | 253 8 | 253.8 | 2 | 25,380 | 8 | 67,680 |
| | N/A | 414.0 | 248 4 | 248 4 | 248 4 | 2 | 24,840 | 8 | 66,240 |
| | N/A | 492 0 | 295 2 | 295 2 | 295 2 | 2 | 29 520 | 8 | 78,720 |
| | N/A | 100 0 | 25 0 | 25.0 | 25.0 | 2 | 6,000 | 4 | 8,000 |
| /els | N/A | 360.0 | 90 0 | 90 0 | 90.0 | 2 | 21,600 | 4 | 28,800 |
| | N/A | 609.0 | 152.3 | 152.3 | 152.3 | 2 | 36.540 | 4 | 48,720 |
| | N/A | 413 0 | 103 3 | 103 3 | 103.3 | 2 | 24,780 | 4 | 33,040 |
| | N/A | 676 0 | 169 0 | 169 0 | 169 0 | 2 | 40 560 | 4 | 54 080 |
| \ | | 7,592 | 2,642 | 3,156 | 3,799 | 1,894 | 461,853 | 1,711 | 688,523 |

| | Cooling Equipment Field Data/Reference/(Location) | Intermediate Billing Months Off-Peak hrs/day | Intermediate Off-Peak kWh/Mo | Intermediate On-Peak hrs/day | Intermediate On-Peak kWh/Mo | Summer Billing Months Off-Peak hrs/day | Summer Off-Peak kWh/Mo | Summer On-Peak hrs/day | Summer On-Peak kWh/Mo | Non-Summe Demand kW/Yr. | Non-Summe Off-Peak KWH/Yr. | Non-Summe On-F KWH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N/A | 3 | 333 | 2 | 148 | 3 | 333 | 2 | 148 | 22 | 2,664 | |
| | N/A | 3 | 333 | 2 | 148 | 3 | 333 | 2 | 148 | 22 | 2,664 | |
| | N/A | 3 | 396 | 2 | 176 | 3 | 396 | 2 | 176 | 26 | 3,168 | |
| | N/A | 3 | 1 341 | 2 | 596 | 3 | 1 341 | 2 | 596 | 89 | 10 728 | |
| | Condenser | 12 | 1,332 | 8 | 592 | 12 | 1,332 | 8 | 592 | 22 | 10,656 | |
| | Condenser | 12 | 540 | 8 | 240 | 12 | 540 | 8 | 240 | 9 | 4,320 | |
| | Condenser | 12 | 270 | 8 | 120 | 12 | 270 | 8 | 120 | 5 | 2,160 | |
| | Condenser | 12 | 432 | 8 | 192 | 12 | 432 | 8 | 192 | 7 | 3,456 | |
| | Condenser | 10 | 3,360 | 8 | 1,792 | 10 | 3,360 | 8 | 1,792 | 67 | 26 880 | 1 |
| | N/A | 2 | 7,560 | 8 | 20,160 | 2 | 7,560 | 8 | 20,160 | 605 | 60,480 | 16 |
| els | N/A | 2 | 20,940 | 8 | 55,840 | 2 | 20,940 | 8 | 55,840 | 1,675 | 167,520 | 44 |
| | N/A | 2 | 25,380 | 8 | 67,680 | 2 | 25,380 | 8 | 67,680 | 2,030 | 203,040 | 54 |
| | N/A | 2 | 24,840 | 8 | 66,240 | 2 | 24,840 | 8 | 66,240 | 1,987 | 198,720 | 52 |
| | N/A | 2 | 29.520 | 8 | 78.720 | 2 | 29.520 | 8 | 78.720 | 2,362 | 236 160 | 62 |
| | N/A | 2 | 6,000 | 4 | 8,000 | 2 | 6,000 | 4 | 8,000 | 200 | 48,000 | 6 |
| /els | N/A | 2 | 21,600 | 4 | 28,800 | 2 | 21,600 | 4 | 28,800 | 720 | 172,800 | 23 |
| | N/A | 2 | 36,540 | 4 | 48,720 | 2 | 36,540 | 4 | 48,720 | 1,218 | 292,320 | 38 |
| | N/A | 2 | 24,780 | 4 | 33,040 | 2 | 24,780 | 4 | 33,040 | 826 | 198,240 | 26 |
| | N/A | 2 | 40,560 | 4 | 54 080 | 2 | 40 560 | 4 | 54,080 | 1,352 | 324 480 | 43 |
| \ | | 1,937 | 551,002 | 1,791 | 765,951 | 1,912 | 705,897 | 1,863 | 899,287 | 23,192 | 4,051,422 | 5,81 |

The Hope Road/Charles Wood electric billing data is shown at the right for comparison to the data calculated for Building 2700

*Historical Billing Demand Averages*

| | Winter | Intermediate | Summer |
|---|---|---|---|
| | 4,736 | 4,701 | 6,977 |
| | 4,726 | 4,957 | 7,020 |
| | 4,692 | 4,482 | 6,757 |
| | 4,678 | 4,865 | 5,623 |
| Avg | 4,70[illegible] | 4,751 | 6,394 |
| Totals | 18,8[illegible] | 19,0[illegible] | 26,377 |

*Historical Billing On-Peak Averages*

| | Winter | | Intermediate | | Summer |
|---|---|---|---|---|---|
| Dec | 996,300 | Apr | 1,031,400 | Jun | 1,368,000 |
| Jan | 1,008,000 | May | 990,000 | Jul | 1,629,000 |
| Feb | 1,044,000 | Oct | 981,000 | Aug | 1,305,000 |
| Mar | 1,003,500 | Nov | 1,116,000 | Sep | 1,233,000 |
| Avg | 1,012,950 | | 1,029,600 | | 1,383,750 |
| Totals | 4,051,800 | | 4,118,4[illegible] | | 5,535,000 |

*Historical Billing Off-Peak Averages*

| | Winter | | Intermediate | |
|---|---|---|---|---|
| Dec | 1,215,000 | Apr | 1,485,000 | J |
| Jan | 1,170,000 | May | 1,314,000 | J |
| Feb | 1,449,000 | Oct | 1,386,000 | A |
| Mar | 1,296,000 | Nov | 1,566,000 | S |
| Avg | 1,282,500 | | 1,437,750 | |
| Totals | 5,130,000 | | 5,751,000 | |

Winter Months October, November, December, January, February, March, April, May
Summer Months June, July, August, September

| | Winter | Summer |
|---|---|---|
| Incremental Demand Cost, $/kW | $8.31 | $9.22 |
| Off-Peak Incremental Usage Cost, $/kWh | $0.062 | $0.063 |
| On-Peak Incremental Usage Cost, $/kWh | $0.072 | $0.072 |

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## ⁼ THE ARMY
## ILDING 2706 HVAC EQUIPMENT

| Intermediate Billing Months | | | | Summer Billing Months | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | Non-Summer | | | | Summer | | | | Annual | |
| hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | Demand kW/Yr. | Off-Peak KWH/Yr. | On-Peak KWH/Yr. | Cost $ | Demand kW/Yr. | Off-Peak KWH/Yr. | On-Peak KWH/Yr. | Cost $ | Cost $ | No. |
| 3 | 333 | 2 | 148 | 3 | 333 | 2 | 148 | 22 | 2,664 | 1,184 | $436 | 11 | 1,332 | 592 | $229 | $665 | 301 |
| 3 | 333 | 2 | 148 | 3 | 333 | 2 | 148 | 22 | 2,664 | 1,184 | $436 | 11 | 1,332 | 592 | $229 | $665 | 302 |
| 3 | 396 | 2 | 176 | 3 | 396 | 2 | 176 | 26 | 3,168 | 1,408 | $519 | 13 | 1,584 | 704 | $272 | $791 | 303 |
| 3 | 1,341 | 2 | 596 | 3 | 1,341 | 2 | 596 | 89 | 10,728 | 4,768 | $1,758 | 45 | 5,364 | 2,384 | $920 | $2,678 | 304 |
| 12 | 1,332 | 8 | 592 | 12 | 1,332 | 8 | 592 | 22 | 10,656 | 4,736 | $1,192 | 11 | 5,328 | 2,368 | $607 | $1,800 | 305 |
| 12 | 540 | 8 | 240 | 12 | 540 | 6 | 240 | 9 | 4,320 | 1,920 | $483 | 5 | 2,160 | 960 | $246 | $730 | 306 |
| 12 | 270 | 8 | 120 | 12 | 270 | 8 | 120 | 5 | 2,160 | 960 | $242 | 2 | 1,080 | 480 | $123 | $365 | 307 |
| 12 | 432 | 8 | 192 | 12 | 432 | 8 | 192 | 7 | 3,456 | 1,536 | $387 | 4 | 1,728 | 768 | $197 | $584 | 308 |
| 10 | 3,360 | 8 | 1,792 | 10 | 3,360 | 8 | 1,792 | 67 | 26,880 | 14,336 | $3,274 | 34 | 13,440 | 7,168 | $1,670 | $4,944 | 309 |
| 2 | 7,560 | 8 | 20,160 | 2 | 7,560 | 8 | 20,160 | 605 | 60,480 | 161,280 | $20,469 | 302 | 30,240 | 80,640 | $10,523 | $30,992 | 310 |
| 2 | 20,940 | 8 | 55,840 | 2 | 20,940 | 8 | 55,840 | 1,675 | 167,520 | 446,720 | $56,697 | 838 | 83,760 | 223,360 | $29,147 | $85,844 | 311 |
| 2 | 25,380 | 8 | 67,680 | 2 | 25,380 | 8 | 67,680 | 2,030 | 203,040 | 541,440 | $68,718 | 1,015 | 101,520 | 270,720 | $35,328 | $104,046 | 312 |
| 2 | 24,840 | 8 | 66,240 | 2 | 24,840 | 8 | 66,240 | 1,987 | 198,720 | 529,920 | $67,256 | 994 | 99,360 | 264,960 | $34,576 | $101,832 | 313 |
| 2 | 29,520 | 8 | 78,720 | 2 | 29,520 | 8 | 78,720 | 2,362 | 236,160 | 629,760 | $79,928 | 1,181 | 118,080 | 314,880 | $41,090 | $121,018 | 314 |
| 2 | 6,000 | 4 | 8,000 | 2 | 6,000 | 4 | 8,000 | 200 | 48,000 | 64,000 | $9,289 | 100 | 24,000 | 32,000 | $4,742 | $14,031 | 315 |
| 2 | 21,600 | 4 | 28,800 | 2 | 21,600 | 4 | 28,800 | 720 | 172,800 | 230,400 | $33,440 | 360 | 86,400 | 115,200 | $17,072 | $50,512 | 316 |
| 2 | 36,540 | 4 | 48,720 | 2 | 36,540 | 4 | 48,720 | 1,218 | 292,320 | 389,760 | $56,569 | 609 | 146,160 | 194,880 | $28,880 | $85,449 | 317 |
| 2 | 24,780 | 4 | 33,040 | 2 | 24,780 | 4 | 33,040 | 826 | 198,240 | 264,320 | $38,363 | 413 | 99,120 | 132,160 | $19,585 | $57,948 | 318 |
| 2 | 40,560 | 4 | 54,080 | 2 | 40,560 | 4 | 54,080 | 1,352 | 324,480 | 432,640 | $62,793 | 676 | 162,240 | 216,320 | $32,057 | $94,850 | 319 |
| 1,937 | 551,002 | 1,791 | 765,951 | 1,912 | 705,897 | 1,863 | 899,287 | 23,192 | 4,051,422 | 5,817,896 | $866,560 | 15,197 | 2,823,688 | 3,597,149 | $577,413 | $1,443,973 | |

*...cal Billing On-Peak Averages*

| | | | |
|---|---|---|---|
| Apr | 1,031,400 | Jun | 1,364,000 |
| May | 990,000 | Jul | 1,629,000 |
| Oct | 981,000 | Aug | 1,303,000 |
| Nov | 1,116,000 | Sep | 1,233,000 |
| | 1,029,600 | | 1,383,750 |
| | 4,118,400 | | 5,535,000 |
| | Intermediate | | Summer |

*Historical Billing Off-Peak Averages*

| | | | | | |
|---|---|---|---|---|---|
| Dec | 1,215,000 | Apr | 1,485,000 | Jun | 1,843,000 |
| Jan | 1,170,000 | May | 1,314,000 | Jul | 2,403,000 |
| Feb | 1,449,000 | Oct | 1,386,000 | Aug | 1,854,000 |
| Mar | 1,296,000 | Nov | 1,566,000 | Sep | 1,656,000 |
| Avg | 1,282,500 | | 1,437,750 | | 1,939,500 |
| Total | 5,130,000 | | 5,751,000 | | 7,758,000 |
| | Winter | | Intermediate | | Summer |

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### 5.6.3 Comparison

The results of the electric demand, usage and cost for Building 2700 when compared to the same values from the Hope Road/Charles Wood Area data is as follows in Table 5.6.3.1.

The results show that the electrical costs for Building 2700 constitute approximately 54% of the billing for the large area. Of that, the on-peak usage and demands are slightly higher because the building is basically operated during the day only, while the usage and demands go up at night in the outlying areas primarily made up of relatively small buildings, and large residential areas with barracks and homes.

Included in this section are two comparisons of HVAC system totals for DOE Modeling results versus the Electric Model results. MCA hot and chilled water systems analysis is within 4% of the estimates developed in the Electric Model. Comparisons of the areas which utilize miscellaneous cooling systems are not as accurate, ±25%. This is primarily due to the large quantity of units and spaces which are conditioned. DOE has limitations as to the quantity of systems and zones which can be modeled. These limitations do not provide praticality in modeling every 1 ton to 5 ton unit. To save space and time, large areas were modeled under one-cooling system rather than the multiple systems that exist whereas the Electric Model is modeled on a much smaller scale. However, a variance of less than 25% is still acceptable and within the confines of this study. Because DOE can provide a wide array of energy

conservation simulations, these models and results will be utilized in ECOs where applicable.

**Table 5.6.3.1, Electric Modeling Results Comparison**
**Building 2700 vs Hope Road/Charles Wood Area**

| | Billing - Hope Road/ Charles Wood Area | Building 2700 Electric Model | % |
|---|---|---|---|
| Summer Demand (kW/mo) | 6,594 | 3,799 | 58% |
| Summer On-peak Usage (kWh/mo) | 1,383,750 | 899,287 | 65% |
| Summer Off-peak Usage (kWh/mo) | 1,939,500 | 705,897 | 36% |
| Summer Cost ($/mo) | $277,058 | $144,353 | 52% |
| Summer Total Cost ($) | $1,108,232 | $577,410 | 52% |
| Intermediate Demand (kW/mo) | 4,751 | 3,156 | 66% |
| Intermediate On-peak Usage (kWh/mo) | 1,029,600 | 765,951 | 74% |
| Intermediate Off-peak Usage (kWh/mo) | 1,437,750 | 551,002 | 38% |
| Intermediate Cost ($/mo) | $200,050 | $115,263 | 58% |
| Intermediate Total Cost ($) | $800,200 | $461,060 | 58% |
| Winter Demand (kW/mo) | 4,709 | 2,642 | 56% |
| Winter On-peak Usage (kWh/mo) | 1,012,950 | 688,523 | 68% |
| Winter Off-peak Usage (kWh/mo) | 1,282,500 | 461,853 | 36% |
| Winter Cost ($/mo) | $196,945 | $101,373 | 51% |
| Winter Total Cost ($) | $787,780 | $405,490 | 51% |
| Total Demand (kW/yr) | 64,216 | 38,388 | 60% |
| Total On-peak Usage (kW/yr) | 13,705,200 | 9,415,044 | 69% |
| Total Off-peak Usage (kW/yr) | 18,639,000 | 6,875,008 | 37% |
| Total Cost ($/yr) | $2,696,200 | $1,443,960 | 54% |

# 6.0 ENERGY CONSERVATION OPPORTUNITIES

## 6.1 General

The items discussed in this section of the report are the result of investigation of many energy cost reduction strategies.

**Existing**, discusses the current operational energy levels and approximate costs.

**Proposed**, presents a new concept designed to save energy; however, it should be understood that the actual design has not yet been performed. Arrangements and quantities may change somewhat during final design.

**Construction Costs**, covers materials, labor, and indirect costs needed for a complete project, including associated engineering design and construction management costs. Escalation is not included. Costs are in 1996 dollars.

**Savings**, shows an expected level of annual energy and cost savings; however does not include price increases of various energy sources or interactive savings. The ECOs are calculated on a stand alone basis.

**Operation/Maintenance Savings,** estimate of the proposed maintenance savings resulting from implementing the ECO.

**Discussion**, notes the results of the life cycle costs (LCCID) summary.

## 6.2 ECO List

Below is Entech's list with explanations for the ECOs considered for evaluation with this study. Additional ECOs may be added if considered appropriate for the building and this study in general.

ECOs not evaluated will include lighting issues which are presently being studied by Fort Monmouth personnel through other means and the possibility of converting Building 2705 to a geo-thermal heat pump system which is being evaluated by Fort Monmouth with the assistance of the utility company.

Note: ECO -5 is included as an example for review.

**ECO List**

1. Steam Decentralization - Base Case
   - Heating
     - Building 2700 AHU's and UH's converted to MCA 2-pipe hot water heating system/season.
     - Building's 2704 and 2705 converted to new boiler plants located in each building.
   - Reheat
     - Building 2700 cleanrooms to new boiler on fourth floor (MR-#43).
     - Building 2705 reheat on new heating boiler.
   - Kitchen Equipment - Convert to gas appliances.
   - Domestic Hot Water - Convert to gas with existing distribution system.

   Variations on the base case will be reviewed with specific changes being evaluated against the base. Each change or option will be looked at individually to see if it is beneficial or not to the base case. The options are limited and are listed below:

Base Case Options:

a. New Steam Heating Boilers in Building 2700 basement area for steam loads considered essential for year round operation. (This is in addition to new cleanroom boilers on the fourth floor.)

b. New Hot Water Boilers for Cleanroom (in lieu of new steam boiler).

c. Operate Ceanrooms with MCA Hot Water supplied from Building 2706 (utility). Requires year round operation of proposed boilers for system, and the installation of dedicated supply and return piping from Building 2706.

d. Electric Domestic Hot Water Generator with existing central system.

e. Decentralize Domestic Hot Water System with point of use electric water heaters.

The evaluation of the base case and it's options will determine the best answer for this ECO. Natural gas at $7.50/mcf will be assumed for all existing and future fuel requirements.

2. Occupied/Unoccupied cycle for the MCA 2-pipe AHU's time clocks, (perimeter heat by fan coil units).

3. Reduce Building Infiltration.

4. Replace Existing Central Chillers.

5. Convert Specific Air Cooled Chillers to Water Cooled Chillers.

6. Free Cooling for specific chiller loops using a heat exchanger with cooling tower water bypassing the chillers.

7. 2-Speed Fan Operation for Central Cooling Tower Optimization.

8. Replace DHW Recirculation Pumps.

9. Automated MCA HW Temperature Reset based on outside air temperature.

10. Full Chilled Water Storage for central chiller plant

11. Partial Chilled Water Storage for central chiller plant.

12. Variable Flow Primary-Secondary Chilled Water Distribution (to replace pressure bypass and primary system with VFD's on secondary loop).

## 6.3 ECOs Evaluations

ECO-1 and Options A, B, C, D and E, and ECO-2 through 12 follow in detail.

## ECO-1
## STEAM DECENTRALIZATION - BASE CASE

**Existing.** The present installation at Fort Monmouth for supplying steam to Buildings 2700, 2704, 2705, and 2715 is housed in the basement of Building 2700. Underground piping supplies and returns steam and condensate, respectively to/from the other buildings. Section 4, Table 4.5.4 reflects that in recent years the plant produces approximately 51,070 mlbs/yr.

**Building 2706 Boiler Plant (MCA HW).** For the existing conditions of this ECO we will assume that the new boilers in Building 2706 are up and running thereby separating the MCA hot water load from the existing boiler plant. The MCA hot water load is estimated to be 5,500 mlbs/yr (5,500 mmBtu/yr).

Since this is now considered a hot water boiler operation for the MCA system, we can eliminate most of the losses (leaks and heat loss) associated with this system by assuming a slightly lower boiler efficiency than what is expected (82-84%) with this new installation, taking into account some reduction due to system inefficiencies (ie: heat loss).

For this ECO we will assume an 80% efficiency for the existing (new) hot water boilers, and for all future boilers analyzed in this ECO. Additional losses will be applied to those boilers in future evaluations that are steam.

The existing fuel consumption in Building 2706 associated with producing hot water for the MCA system is estimated to be 6,670 mcf. The cost for MCA hot water production is $50,000.

Natural Gas (mcf) (for MCA Hot Water) = 5,500 mmBtu/yr ÷ .80 eff ÷ 1.031 mcf/mmBtu

Natural Gas (mcf) = 6,670 mcf/yr

Fuel Cost ($)
(for MCA Hot Water) = 6,670 mcf/yr x $7.50/mcf = $50,000

**Building 2700 Boiler Plant.** From Table 5.2.7.2, the steam production required to support the remainder of the loads excluding the MCA hot water is 44,700 mlbs/yr (44,700 mmBtu/yr). The efficiency associated with Boiler #3 utilizing a new gas train is estimated to be 76%, which is the same as the past use with No. 2 fuel oil. The fuel consumption associated with these loads is 63,720 mcf. The fuel cost for these loads is $428,000.

Natural Gas (mcf)
(for Bldg 2700 plant) = 44,700 mmBtu/yr x .76 eff ÷ 1.031 mmBtu/mcf = 63,720 mcf/yr

Fuel Cost ($)
(for Bldg 2700 plant) = 63,720 mcf/yr x $7.50/mcf = $428,000

The combined yearly totals for the two boiler plants for production, fuel and cost are as follows:

| | Heating (mmBtu/yr) | Fuel (mmBtu/yr) | Fuel Nat. Gas (mcf/yr) | Fuel Cost ($/yr) |
|---|---|---|---|---|
| Building 2706 BP (MCA HW) | 5,500 | 6,875 | 6,670 | $50,000 |
| Building 2700 Boiler Plant | 44,700 | 58,820 | 57,050 | $428,000 |
| Totals | 50,200 | 65,695 | 63,720 | $478,000 |

**Building 2700 and 2706 Boiler Plant Electric Totals.** The electric demand and consumption totals for the pumps related to Building 2700 steam/heating systems are calculated next. The forced draft fans for both the old and newer boilers with the existing condition are included in the miscellaneous totals in the Electric Model. Also included in these totals are the domestic hot

water pumps. Future changes are not expected to impact these totals to any degree. Only new pumps, boiler fans, etc. will be evaluated in the future section of this ECO. The annual electric demand and usage totals for the existing pumps associated with the Building 2700 and 2706 boiler plants are 462 kW/yr and 200,862 kWh/yr. All at a yearly cost of $17,068/yr. The summary is shown below. Also refer to Table ECO-1E following this page for the Electric Model impact.

| Season | Demand (kW) | Off-Peak (kWh) | On-Peak (kWh) | Energy (mmBtu) | Cost ($) |
|---|---|---|---|---|---|
| Non-Summer | 348 | 105,312 | 46,208 | 517 | $12,813 |
| Summer | 114 | 33,840 | 15,040 | 167 | $4,255 |
| Totals | 462 | 139,152 | 61,248 | 684 | $17,068 |

The total energy cost to operate the two boilers and support equipment is approximately $495,000/yr.

**Operating and Maintenance Cost.**

The yearly operating and maintenance costs for the two plants is estimated to be approximately:

1) Building 2700 Continuous Operation/Monitoring (5 people) $200,000/yr
Equipment Maintenance (Boilers, pumps, etc.) $200,000/yr

2) Building 2706 Daily Monitoring $40,000/yr
Equipment Maintenance $50,000/yr

The one year cost for firing, operating and maintaining the two plants is estimated to be close to $1 million.

| | |
|---|---|
| Energy Cost | $495,000 |
| Operation/Maintenance | $490,000 |
| Total | $985,000 |

| HVAC Item | HVAC Airside Equipment - General Information Design/Site Designation | Equip. Type | Field Data/Reference/(Location) | Area Served | Cooling Equipment Field Data/Reference/(Location) | Total Connected Load (kW) | Winter Demand kW/month | Interm Dema kW/mo |
|---|---|---|---|---|---|---|---|---|
| 282 | HWP-1 | Pump | Allis Charmers - Building 2706 | MCA Hot Water | N/A | 11.2 | 8.4 | |
| 283 | HWP-2 | Pump | Allis Charmers - Building 2706 | MCA Hot Water - Lag | N/A | 11.2 | 8.4 | |
| 284 | HWP-3 | Pump | Allis Charmers - Building 2706 | MCA Hot Water - Standby | N/A | 11.2 | 0.0 | |
| 296 | FWP-1 | Pump | Aurora - Building 2700 | Boiler Feedwater | N/A | 18.7 | 14.0 | |
| 297 | FWP-2 | Pump | Worthington - Building 2700 | Boiler Feedwater | N/A | 18.7 | 0.0 | |
| 298 | FWP-3 | Pump | Ingersol Rand - Building 2700 | Boiler Feedwater | N/A | 18.7 | 0.0 | |
| 299 | CP-1 | Pump | Aurora - Building 2700 | Condensate | N/A | 3.7 | 2.8 | |
| 300 | CP-2 | Pump | Aurora - Building 2700 | Condensate | N/A | 3.7 | 2.8 | |
| 301 | CP-7 | Pump | Aurora - Building 2700 | Condensate | N/A | 3.7 | 2.8 | |
| 302 | CP-8 | Pump | Aurora - Building 2700 | Condensate | N/A | 3.7 | 2.8 | |
| 303 | CP-1 (New) | Pump | unknown - Building 2706 | Condensate | N/A | 4.4 | 3.3 | |
| | | | | TOTALS | | 109 | 45 | |



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## FT. MONMOUTH, DEPARTMENT OF THE ARMY
## BUILDING 2700 ELECTRIC MODEL - EXISTING HEATING SYSTEM TOTALS

TABLE ECO-1-E

| Area Served | Cooling Equipment Field Data/Reference/(Location) | Total Connected Load (kW) | Winter Demand kW/month | Intermed. Demand kW/month | Summer Demand kW/month | Winter Billing Months Off-Peak hrs/day | Winter Billing Months Off-Peak kWh/Mo | Winter Billing Months On-Peak hrs/day | Winter Billing Months On-Peak kWh/Mo | Intermediate Billing Months Off-Peak hrs/day | Intermediate Billing Months Off-Peak kWh/Mo | Intermediate Billing Months On-Peak hrs/day | Intermediate Billing Months On-Peak kWh/Mo | Summer Billing Months Off-Peak hrs/day | Summer Billing Months Off-Peak kWh/Mo | Summer Billing Months On-Peak hrs/day | Summer Billing Months On-Peak kWh/Mo | Demand kW/Yr | Non Off-Peak KWH/Yr |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hot Water | N/A | 11.2 | 8.4 | 6.7 | 0.0 | 12.0 | 4,032 | 8 | 1,792 | 9 | 3,024 | 6 | 1,344 | 0 | 0 | 0 | 0 | 60 | 28,22 |
| Hot Water - Lag | N/A | 11.2 | 8.4 | 6.7 | 0.0 | 4.0 | 1,344 | 2 | 448 | 3 | 1,008 | 2 | 448 | 0 | 0 | 0 | 0 | 60 | 9,40 |
| Hot Water - Standby | N/A | 11.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Feedwater | N/A | 18.7 | 14.0 | 14.0 | 14.0 | 12 | 6,732 | 8 | 2,992 | 12 | 6,732 | 8 | 2,992 | 12 | 6,732 | 8 | 2,992 | 112 | 53,85 |
| Feedwater | N/A | 18.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Feedwater | N/A | 18.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| ensate | N/A | 3.7 | 2.8 | 2.8 | 2.8 | 3.0 | 333 | 2 | 148 | 3 | 333 | 2 | 148 | 3 | 333 | 2 | 148 | 22 | 2,66 |
| onsate | N/A | 3.7 | 2.8 | 2.8 | 2.8 | 3.0 | 333 | 2 | 148 | 3 | 333 | 2 | 148 | 3 | 333 | 2 | 148 | 22 | 2,66 |
| onsate | N/A | 3.7 | 2.8 | 2.8 | 2.8 | 3.0 | 333 | 2 | 148 | 3 | 333 | 2 | 148 | 3 | 333 | 2 | 148 | 22 | 2,66 |
| ensate | N/A | 3.7 | 2.8 | 2.8 | 2.8 | 3.0 | 333 | 2 | 148 | 3 | 333 | 2 | 148 | 3 | 333 | 2 | 148 | 22 | 2,66 |
| ensate | N/A | 4.4 | 3.3 | 3.3 | 3.3 | 3.0 | 396 | 2 | 176 | 3 | 396 | 2 | 176 | 3 | 396 | 2 | 176 | 25 | 3,16 |
| TOTALS | | 109 | 45 | 42 | 28 | 43 | 13,836 | 28 | 6,000 | 39 | 12,492 | 26 | 5,552 | 27 | 8,460 | 18 | 3,760 | 348 | 105,31 |

2

'MENT OF THE ARMY
ISTING HEATING SYSTEM TOTALS

)-1-E

| g Months | | Intermediate Billing Months | | | | Summer Billing Months | | | | Non-Summer | | | | Summer | | | | Annual | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| On-Peak | | Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | | | | | | | | | | |
| hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | Demand kW/Yr. | Off-Peak KWH/Yr. | On-Peak KWH/Yr. | Cost $ | Demand kW/Yr | Off-Peak KWH/Yr | On-Peak KWH/Yr. | Cost $ | Cost $ | No. |
| 8 | 1,792 | 9 | 3,024 | 6 | 1,344 | 0 | 0 | 0 | 0 | 60 | 28,224 | 12,544 | $3,172 | 0 | 0 | 0 | $0 | $3,172 | 282 |
| 2 | 448 | 3 | 1,008 | 2 | 448 | 0 | 0 | 0 | 0 | 60 | 9,408 | 3,584 | $1,349 | 0 | 0 | 0 | $0 | $1,349 | 283 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 284 |
| 8 | 2,992 | 12 | 6,732 | 8 | 2,992 | 12 | 6,732 | 8 | 2,992 | 112 | 53,856 | 23,936 | $6,027 | 56 | 26,928 | 11,968 | $3,069 | $9,096 | 296 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 297 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 298 |
| 2 | 148 | 3 | 333 | 2 | 148 | 3 | 333 | 2 | 148 | 22 | 2,664 | 1,184 | $436 | 11 | 1,332 | 592 | $229 | $665 | 299 |
| 2 | 148 | 3 | 333 | 2 | 148 | 3 | 333 | 2 | 148 | 22 | 2,664 | 1,184 | $436 | 11 | 1,332 | 592 | $229 | $665 | 300 |
| 2 | 148 | 3 | 333 | 2 | 148 | 3 | 333 | 2 | 148 | 22 | 2,664 | 1,184 | $436 | 11 | 1,332 | 592 | $229 | $665 | 301 |
| 2 | 148 | 3 | 333 | 2 | 148 | 3 | 333 | 2 | 148 | 22 | 2,664 | 1,184 | $436 | 11 | 1,332 | 592 | $229 | $665 | 302 |
| 2 | 176 | 3 | 396 | 2 | 176 | 3 | 396 | 2 | 176 | 26 | 3,168 | 1,408 | $519 | 13 | 1,584 | 704 | [illegible] | $791 | 303 |
| 28 | 6,000 | 39 | 12,492 | 26 | 5,552 | 27 | 8,460 | 18 | 3,760 | 348 | 105,312 | 46,208 | $12,813 | 114 | 33,840 | 15,040 | $4,255 | $17,068 | |

3

**Proposed.** To replace the outdated Central Steam Boiler Plant in Building 2700 with alternative methods for providing energy for heating and reheat where applicable for Buildings 2700, 2704, 2705, 2706 and 2715, domestic hot water for Building 2700, and new support equipment for the cafeteria in Building 2700. The proposed base case for this decentralization is as follows:

Steam Decentralization - Base Case

- Heating
  - Building 2700 AHU's and UH's converted to MCA 2-pipe hot water heating system/season.
  - Building's 2704 (steam) and 2705 (hot water) converted to new boiler plants located in/near each building. Steam coils and unit heaters to be replaced by hot water equipment in Building 2705.
- Reheat
  - Building 2700 cleanrooms to new steam (or hot water, see ECO-1B) boilers on fourth floor (MR-#43).
  - Building 2705 reheat on new hot water heating boilers.
- Kitchen Equipment - Convert to gas appliances.
- Domestic Hot Water - Convert to new gas generator with existing distribution system.

Note: See the proposed electric and the construction cost sections for implementation details about each of these.

Table 5.2.7.4 Summarizes the daily requirements in mlbs/day of steam. These totals when converted (1 to1) to mmBtu/day are listed in the following table. Since the old boiler loads are being replaced by new boilers including the hot water boilers in Building 2706 dedicated to the MCA system, we can lump the totals as shown. Some adjustments to the totals are made for incorporating losses associated with the steam boilers dedicated for Building 2704, and for the cleanroom areas in Building 2700. An additional 10% will be included for losses with heating Building 2704 and 10% is added to the reheat loads for Building 2700. The mmBtu/yr totals were adjusted accordingly. Refer to the following table for

the totals for heating type energies required with the proposed conditions.

| Usage | Average mmBtu/day | Adjusted mmBtu/day | Total mmBtu/yr | Adjusted mmBtu/yr |
|---|---|---|---|---|
| Space Heating | 22.3 | 22.6 | 8,140 | 8,240 |
| Reheat | 31.9 | 33.8 | 11,650 | 12,320 |
| Domestic Hot Water | 5.6 | 5.6 | 2,040 | 2,040 |
| Cafeteria Use | 1.6 | 1.6 | 600 | 600 |
| Totals | 61.4 | 63.6 | 22,430 | 23,200 |

**Proposed Natural Gas Usage and Cost.** Using the proposed adjusted energy requirements listed above we can now predict the fuel (natural gas) requirements for the new arrangement. As stated before, an efficiency of 80% will be assumed for all gas-fired heating equipment thereby allowing for grouping the different uses and/or boilers. The totals for fuel energy (mmBtu), natural gas (mcf), and fuel cost are summarized below with the total for fuel (natural gas) predicted to be about $211,000.

| Usage | Heating (mmBtu/yr) | Fuel (mmBtu/yr) | Natural Gas (mcf/yr) | Fuel Cost ($/yr) |
|---|---|---|---|---|
| Space Heating | 8,250 | 10,310 | 10,000 | $75,000 |
| Reheat | 12,320 | 15,400 | 14,940 | $112,050 |
| Domestic Hot Water | 2,040 | 2,550 | 2,475 | $18,560 |
| Cafeteria Use | 600 | 750 | 725 | $5,440 |
| Totals | 23,210 | 29,010 | 28,140 | $211,050 |

**Proposed Electric Usage and Cost.** The proposed electric demand and usage totals for the decentralization of Buildings 2700's central steam plant is determined below. The following assumptions will be established

to support equipment for the installation of each piece of replacement equipment.

Proposed Electric Assumptions

1) Savings will be recognized from the elimination of the pumps related to the existing Building 2700 central steam plant.

2) Added energy costs will be incurred from the increased size in pump horsepower for the MCA system. This increase is from the added load (50%) being placed on the system. The new pumps are estimated to require 30 HP motors in lieu of the existing 15 HP motors.

3) Support of Building 2700, Fourth floor cleanroom loads will require (2) 25 HP boilers which will utilize forced draft fans estimated to be about 1.5 HP (each). The boiler feed (condensate return) pumps will require 0.5 HP motors (each).

4) The new steam boilers in Building 2704 will require forced draft fans of about 1 HP (each). The boiler feed (condensate return) pumps will require 0.5 HP motors (each). The lighting for the new space is estimated to be about 1.75 watt/ft$^2$ or 2600 watts.

5) The new hot water boilers in Building 2705 will require forced draft fans of about 1.5 HP (each). New hot water pumps are estimated to require 7.5 HP motors. The lighting for the new space is estimated to be about 1.75 watts/ft$^2$ or 2600 watts.

6) The electrical energies associated with changes to Building 2700's domestic hot water system, and cafeteria systems are assumed not to change.

7) Chemical treatment pumps if required, are not included in the totals.

8) The electrical requirements for the MCA boilers fans will go up but the elimination of the existing boiler plant's fan offsets these

totals. Again these values will not be separated and are considered in the miscellaneous totals.

The annual electric demand and usage totals for the proposed heating system equipment are 452 kW/yr and 220,068 kWh/yr, all at a cost of $18,157. The summary is shown below.

| Season | Demand (kW) | Off-Peak (kWh) | On-Peak (kWh) | Energy (mmBtu) | Cost ($) |
|---|---|---|---|---|---|
| Non-Summer | 394 | 139,680 | 53,392 | 659 | $15,861 |
| Summer | 58 | 19,860 | 7,136 | 92 | $2,296 |
| Totals | 452 | 159,540 | 60,528 | 751 | $18,157 |

| HVAC Item | HVAC Airside Equipment - General Information | | | | Cooling Equipment Field Data/Reference/(Location) | Total Connected Load (kW) | Winter Demand kW/month | Intermed Demand kW/mont |
|---|---|---|---|---|---|---|---|---|
| | Design/Site Designation | Equip. Type | Field Data/Reference/(Location) | Area Served | | | | |
| 282 | HWP-1 | Pump | Allis Chamers - Building 2706 | MCA Hot Water | N/A | 22 4 | 16 8 | 13 |
| 283 | HWP-2 | Pump | Allis Chamers - Building 2706 | MCA Hot Water - Lag | N/A | 22 4 | 16 8 | 13 |
| 284 | HWP-3 | Pump | Allis Chamers - Building 2706 | MCA Hot Water - Standby | N/A | 22 4 | 0 0 | 0 |
| 296 | FWP-1 | Pump | Aurora - Building 2700 | Boiler Feedwater | N/A (SYSTEM SHUTDOWN) | 0.0 | 0 0 | 0 |
| 297 | FWP-2 | Pump | Worthington - Building 2700 | Boiler Feedwater | N/A (SYSTEM SHUTDOWN) | 0.0 | 0 0 | 0 |
| 298 | FWP-3 | Pump | Ingersol Rand - Building 2700 | Boiler Feedwater | N/A (SYSTEM SHUTDOWN) | 0 0 | 0 0 | 0 |
| 299 | CP-1 | Pump | Aurora - Building 2700 | Condensate | N/A (SYSTEM SHUTDOWN) | 0.0 | 0 0 | 0 |
| 300 | CP-2 | Pump | Aurora - Building 2700 | Condensate | N/A (SYSTEM SHUTDOWN) | 0 0 | 0 0 | 0 |
| 301 | CP-7 | Pump | Aurora - Building 2700 | Condensate | N/A (SYSTEM SHUTDOWN) | 0.0 | 0 0 | 0 |
| 302 | CP-8 | Pump | Aurora - Building 2700 | Condensate | N/A (SYSTEM SHUTDOWN) | 0.0 | 0 0 | 0 |
| 303 | CP-1 (New) | Pump | unknown - Building 2706 | Condensate | N/A (SYSTEM SHUTDOWN) | 0.0 | 0 0 | 0 |
| 320 | - | F.D. Fan | Proposed as New in MR # 43 | Building 2700 Cleanrooms | N/A | 1.1 | 0 8 | 0 |
| 321 | - | F.D. Fan | Proposed as New in MR # 43 | Building 2700 Cleanrooms | N/A | 1.1 | 0 8 | 0 |
| 322 | - | Pump | Proposed as New in MR # 43 | Building 2700 Cleanrooms | N/A | 0.8 | 0 6 | 0 |
| 323 | - | Pump | Proposed as New in MR # 43 | Building 2700 Cleanrooms | N/A | 0.8 | 0 6 | 0 |
| 324 | - | F.D. Fan | Proposed Building 2704 Boiler Plant | Building 2704 Heating Loads | N/A | 0.8 | 0 6 | 0 |
| 325 | - | F.D. Fan | Proposed Building 2704 Boiler Plant | Building 2704 Heating Loads | N/A | 0.8 | 0 6 | 0 |
| 326 | - | Pump | Proposed Building 2704 Boiler Plant | Building 2704 Heating Loads | N/A | 0.8 | 0 6 | 0 |
| 327 | - | Pump | Proposed Building 2704 Boiler Plant | Building 2704 Heating Loads | N/A | 0.8 | 0 6 | 0 |
| 328 | - | Pump | Proposed Building 2704 Boiler Plant | Building 2704 Lighting | N/A | 2.6 | 2 0 | 2 |
| 329 | - | F.D. Fan | Proposed Building 2705 Boiler Plant | Building 2705 Heat/Reheat | N/A | 1.1 | 0 8 | 0 |
| 330 | - | F.D. Fan | Proposed Building 2705 Boiler Plant | Building 2705 Heat/Reheat | N/A | 1.1 | 0 8 | 0 |
| 331 | - | Pump | Proposed Building 2705 Boiler Plant | Building 2705 Heat/Reheat | N/A | 5.6 | 4 2 | 4 |
| 332 | - | Pump | Proposed Building 2705 Boiler Plant | Building 2705 Heat/Reheat | N/A | 5.6 | 4.2 | 4 |
| 333 | - | Lighting | Proposed Building 2705 Boiler Plant | Building 2704 Lighting | N/A | 2 6 | 2 0 | 2 |
| | | | | TOTALS | | 93 | 53 | 4 |



①

## FT. MONMOUTH, DEPARTMENT OF THE ARMY
## BUILDING 2700 ELECTRIC MODEL - PROPOSED DECENTRALIZED HEATING SYSTEM TOTALS

### TABLE ECO-1-P

| | Cooling Equipment Field Data/Reference/(Location) | Total Connected Load (kW) | Winter Demand kW/month | Intermed. Demand kW/month | Summer Demand kW/month | Winter Billing Months | | | | Intermediate Billing Months | | | | Summer Billing Months | | | | Non-Summer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | | | |
| | | | | | | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | Demand kW/Yr. | Off-Peak KWH/Yr. | On-Peak KWH/Yr. |
| | N/A | 22.4 | 16.8 | 13.4 | 0.0 | 12.0 | 8,064 | 8 | 3,584 | 9 | 6,048 | 6 | 2,688 | 0 | 0 | 0 | 0 | 121 | 56,448 | 25,088 |
| | N/A | 22.4 | 16.8 | 13.4 | 0.0 | 8.0 | 5,376 | 4 | 1,792 | 6 | 4,032 | 3 | 1,344 | 0 | 0 | 0 | 0 | 121 | 37,632 | 12,544 |
| dby | N/A | 22.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| oms | N/A | 1.1 | 0.8 | 0.8 | 0.0 | 12.0 | 396 | 8 | 176 | 12 | 396 | 8 | 176 | 12 | 396 | 8 | 176 | 7 | 3,168 | 1,408 |
| oms | N/A | 1.1 | 0.8 | 0.8 | 0.0 | 3.0 | 99 | 0 | 0 | 3 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 792 | 0 |
| oms | N/A | 0.8 | 0.6 | 0.6 | 0.6 | 12.0 | 270 | 8 | 120 | 12 | 270 | 8 | 120 | 12 | 270 | 8 | 120 | 5 | 2,160 | 960 |
| oms | N/A | 0.8 | 0.6 | 0.6 | 0.6 | 3.0 | 68 | 0 | 0 | 3 | 68 | 0 | 0 | 3 | 68 | 0 | 0 | 5 | 540 | 0 |
| Loads | N/A | 0.8 | 0.6 | 0.6 | 0.0 | 12.0 | 288 | 8 | 128 | 8 | 192 | 4 | 64 | 0 | 0 | 0 | 0 | 5 | 1,920 | 768 |
| Loads | N/A | 0.8 | 0.6 | 0.6 | 0.0 | 3.0 | 72 | 0 | 0 | 3 | 72 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 576 | 0 |
| Loads | N/A | 0.8 | 0.6 | 0.6 | 0.6 | 12.0 | 270 | 8 | 120 | 8 | 180 | 4 | 60 | 0 | 0 | 0 | 0 | 5 | 1,800 | 720 |
| Loads | N/A | 0.8 | 0.6 | 0.6 | 0.6 | 3.0 | 68 | 0 | 0 | 3 | 68 | 0 | 0 | 3 | 68 | 0 | 0 | 5 | 540 | 0 |
| | N/A | 2.6 | 2.0 | 2.0 | 2.0 | 8.0 | 624 | 4 | 208 | 8 | 624 | 4 | 208 | 8 | 624 | 4 | 208 | 16 | 4,992 | 1,664 |
| heat | N/A | 1.1 | 0.8 | 0.8 | 0.0 | 12.0 | 396 | 8 | 176 | 12 | 396 | 8 | 176 | 12 | 396 | 8 | 176 | 7 | 3,168 | 1,408 |
| heat | N/A | 1.1 | 0.8 | 0.8 | 0.0 | 3.0 | 99 | 0 | 0 | 3 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 792 | 0 |
| heat | N/A | 5.6 | 4.2 | 4.2 | 4.2 | 12.0 | 2,016 | 8 | 896 | 12 | 2,016 | 8 | 896 | 12 | 2,016 | 8 | 896 | 34 | 16,128 | 7,168 |
| heat | N/A | 5.6 | 4.2 | 4.2 | 4.2 | 3.0 | 504 | 0 | 0 | 3 | 504 | 0 | 0 | 3 | 504 | 0 | 0 | 34 | 4,032 | 0 |
| | N/A | 2.6 | 2.0 | 2.0 | 2.0 | 8.0 | 624 | 4 | 208 | 8 | 624 | 4 | 208 | 8 | 624 | 4 | 208 | 16 | 4,992 | 1,664 |
| TALS | | 93 | 53 | 46 | 15 | 126 | 19,233 | 68 | 7,408 | 113 | 15,687 | 57 | 5,940 | 73 | 4,965 | 40 | 1,784 | 394 | 139,680 | 53,392 |

2

## OF THE ARMY
## TRALIZED HEATING SYSTEM TOTALS

| | Intermediate Billing Months | | | | Summer Billing Months | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | Non-Summer | | | | Summer | | | | Annual | |
| Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | Demand kW/Yr. | Off-Peak KWH/Yr. | On-Peak KWH/Yr. | Cost $ | Demand kW/Yr. | Off-Peak KWH/Yr. | On-Peak KWH/Yr. | Cost $ | Cost $ | No. |
| 584 | 9 | 6,048 | 6 | 2,688 | 0 | 0 | 0 | 0 | 121 | 56,448 | 25,088 | $6,345 | 0 | 0 | 0 | $0 | $6,345 | 282 |
| 792 | 6 | 4,032 | 3 | 1,344 | 0 | 0 | 0 | 0 | 121 | 37,632 | 12,544 | $4,262 | 0 | 0 | 0 | $0 | $4,262 | 283 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 284 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 296 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 297 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 298 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 299 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 300 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 301 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 302 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 303 |
| 176 | 12 | 396 | 8 | 176 | 12 | 396 | 8 | 176 | 7 | 3,168 | 1,408 | $355 | 0 | 1,584 | 704 | $150 | $505 | 320 |
| 0 | 3 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 792 | 0 | $104 | 0 | 0 | 0 | $0 | $104 | 321 |
| 120 | 12 | 270 | 8 | 120 | 12 | 270 | 8 | 120 | 5 | 2,160 | 960 | $242 | 2 | 1,080 | 480 | $123 | $365 | 322 |
| 0 | 3 | 68 | 0 | 0 | 3 | 68 | 0 | 0 | 5 | 540 | 0 | $71 | 2 | 270 | 0 | $38 | $109 | 323 |
| 128 | 8 | 192 | 4 | 64 | 0 | 0 | 0 | 0 | 5 | 1,920 | 768 | $215 | 0 | 0 | 0 | $0 | $215 | 324 |
| 0 | 3 | 72 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 576 | 0 | $76 | 0 | 0 | 0 | $0 | $76 | 325 |
| 120 | 8 | 180 | 4 | 60 | 0 | 0 | 0 | 0 | 5 | 1,800 | 720 | $202 | 2 | 0 | 0 | $21 | $223 | 326 |
| 0 | 3 | 68 | 0 | 0 | 3 | 68 | 0 | 0 | 5 | 540 | 0 | $71 | 2 | 270 | 0 | $38 | $109 | 327 |
| 208 | 8 | 624 | 4 | 208 | 8 | 624 | 4 | 208 | 16 | 4,992 | 1,664 | $562 | 8 | 2,496 | 832 | $288 | $850 | 328 |
| 76 | 12 | 396 | 8 | 176 | 12 | 396 | 8 | 176 | 7 | 3,168 | 1,408 | $355 | 0 | 1,584 | 704 | $150 | $505 | 329 |
| 0 | 3 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 792 | 0 | $104 | 0 | 0 | 0 | $0 | $104 | 330 |
| 96 | 12 | 2,016 | 8 | 896 | 12 | 2,016 | 8 | 896 | 34 | 16,128 | 7,168 | $1,805 | 17 | 8,064 | 3,584 | $919 | $2,724 | 331 |
| 0 | 3 | 504 | 0 | 0 | 3 | 504 | 0 | 0 | 34 | 4,032 | 0 | $531 | 17 | 2,016 | 0 | $281 | $812 | 332 |
| 08 | 8 | 624 | 4 | 208 | 8 | 624 | 4 | 208 | 16 | 4,992 | 1,664 | $562 | 8 | 2,496 | 832 | $288 | $850 | 333 |
| 08 | 113 | 15,687 | 57 | 5,940 | 73 | 4,965 | 40 | 1,784 | 394 | 139,680 | 53,392 | $15,861 | 58 | 19,860 | 7,136 | $2,296 | $18,157 | |

**Proposed Operating and Maintenance Cost.** The proposed yearly operating and maintenance costs for the decentralized boiler plant are estimated. Estimates for Building 2706 have been raised because the proposed load on this system has been increased by 50% causing speculation for more attention and costs.

| | | |
|---|---|---|
| 1) Building 2706 (MCA Hot Water) | Daily Monitoring | $50,000/yr |
| | Equipment Maintenance | $70,000/yr |
| 2) Building 2700 (Cleanrooms) | Daily Monitoring | $30,000/yr |
| | Equipment Maintenance | $30,000/yr |
| 3) Building 2704 (Steam) | Daily Monitoring | $30,000/yr |
| | Equipment Maintenance | $30,000/yr |
| 4) Building 2705 (Hot Water) | Daily Monitoring | $30,000/yr |
| | Equipment Maintenance | $30,000/yr |
| Totals | Daily Monitoring | $140,000/yr |
| | Equipment Maintenance | $160,000/yr |

The proposed one year cost for firing, operating and maintaining the decentralized boiler plant is estimated to be near $538,000.

| | |
|---|---|
| Energy Cost | $238,000 |
| Operation/Maintenance | $300,000 |
| Total | $538,000 |

**Construction Cost.** The construction costs for decentralizing the Building 2700 boiler plant system is estimated to be about $1,340,000.

There are six (6) major changes required to accomplish the decentralization. The description and estimated costs for the six changes to the systems are listed below and discussed further in detail in this section.

1) Building 2700 steam air handling coils and unit heaters switched to MCA hot water. The existing hot water pumps would also be replaced with this option.

2) Building 2700 cleanroom loads dedicated to new steam (or hot water ECO-1B) boilers located in Machine Room #43 on the fourth floor.

3) Building 2700 domestic hot water loads dedicated to a new hot water generator in the old boiler room in the basement.

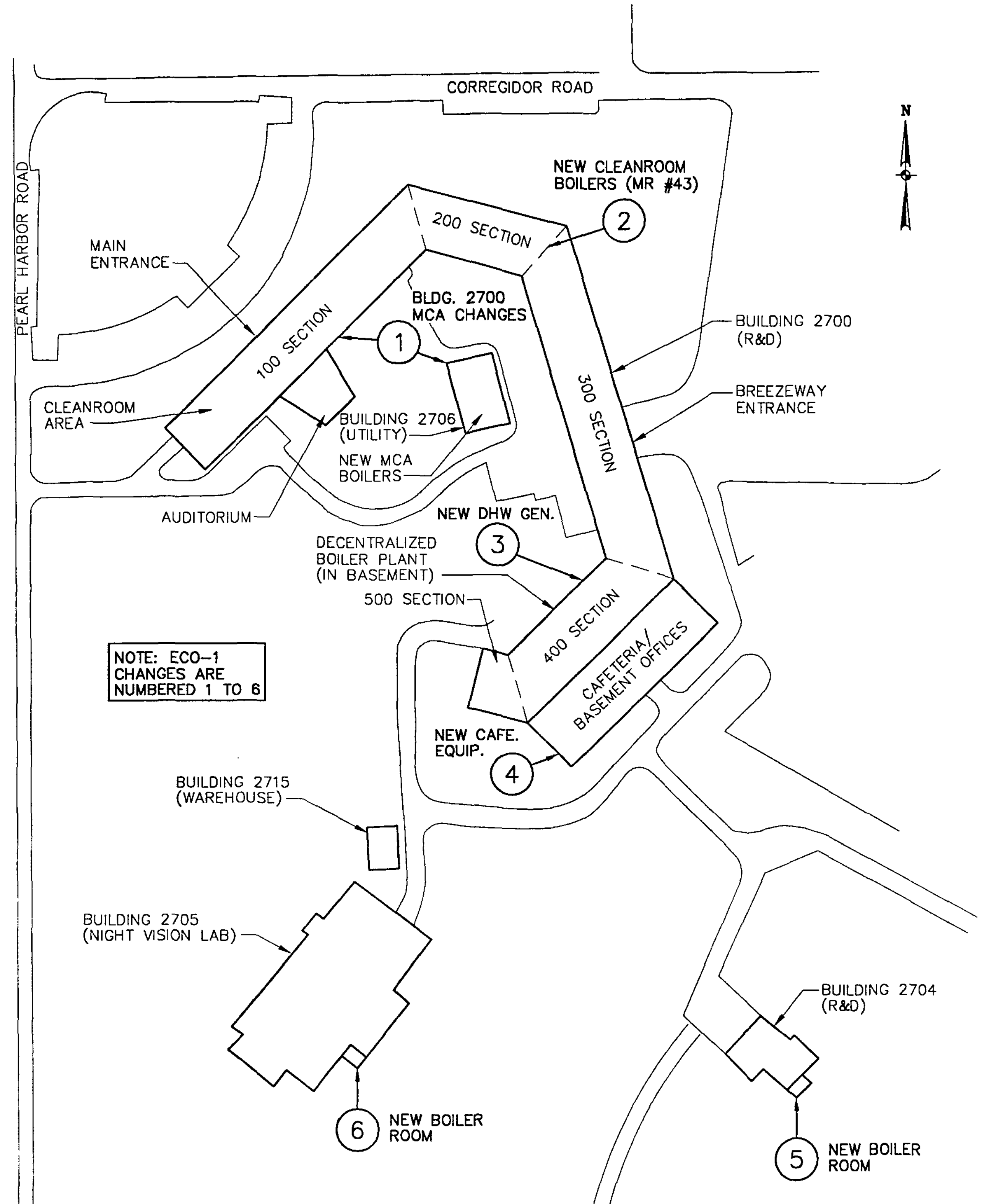
4) Building 2700 cafeteria steam loads converted to new gas-fired equipment.

5) Building 2704 heating loads dedicated to new steam boilers housed in a new building structure located near the existing mechanical room that contains the supply and return piping to the system.

6) Buildings 2705 and 2715 heating loads and Building 2705 reheat loads dedicated to new hot water boilers housed in a new building structure located near the existing mechanical room that contains the supply and return piping to the systems.

Note: Details and costs associated with the demolition, cleanup, and any possible renovations to the existing boiler plant space, after the decentralization is complete, are not speculated in this report. Provisions for heating this space, if required, are not detailed but some costs have been included by raising the contigency totals by 3%. The impact to the ECO for providing heat to this area is considered minor.

Each change is described on the following pages and included are the cost estimates for each. Figure ECO-1 is a markup of the site plant from section locating the changes described. At the end of this section is an estimate that summarizes all six changes.




NOTE:
THE 100, 200 & 300 SECTIONS HAVE (4) FLOORS.
THE 400 & 500 SECTIONS HAVE (4) FLOORS PLUS THE BASEMENT.

| | | | | | | |
|---|---|---|---|---|---|---|
| U.S. ARMY ENGINEER DISTRICT, MOBILE/NORFOLK | ENTECH Engineering Inc. 4 SOUTH FOURTH STREET P.O. BOX 32 READING, PA 19603 (610) 373-6667; 1851 WEST END AVE P.O. BOX 389 POTTSVILLE, PA 17901 (717) 628-5655 | | | | | |
| FORT MONMOUTH NEW JERSEY | DATE 12/28/95 | DRAWN BY RJI | CHECKED BY JED | PROJ. MGR. ELC | APPROVED | |
| LIMITED ENERGY STUDY, EEAP PROGRAM MYER CENTER, BLDG. 2700 – SITE PLAN | SCALE 1" = 200' | PROJECT NO. 4130.05 | | DRAWING NO. FIG. ECO-1 | | REVISION 0 |

1. Building 2700 - Steam Air Handling Coils and Unit Heaters to MCA-HW.

With the exception of the one cleanroom on the second floor and the three on the fourth floor all the remaining steam supplied heating devices in Building 2700 will be replaced by MCA Hot Water Coils/Equipment operating on a seven month schedule. The steam coils in the (19) air handlers will be replaced by hot water coils and the (21) steam unit heaters will be replaced by hot water unit heaters. The two types total up to about 400 gallons per minute of additional connected load for the MCA system. The existing connected load is about 650 gpm bringing the proposed total to about 1,050 gpm. Presently the MCA system with its two (2) 8,400 mmBtu/hr hot water boilers in Building 2706 has two (2) of three (3) pumps operating at 455 gpm each. With the proposed MCA load additions, these three (3) pumps are recommended for changeout to larger pumps estimated to be about 550-600 gpm in capacity.

The 2-pipe MCA water distribution system was sized for chilled water and therefore it is not a problem (in general) to add flow to the system piping. Controls and individual feed details would have to be resolved during the design phase.

Refer to the following two tables ECO-1AHU and ECO-1UH which document the individual units and their demands. The coil piping size is also shown in these tables. Those sizes range from 3/4" to 2" for the air handler coils and 3/4" to 1-1/4" for the unit heaters.

## FT. MONMOUTH, DEPARTMENT OF THE ARMY
## BUILDING 2700 AHU SWITCHOVER FROM STEAM TO MCA HOT WATER COILS

### TABLE EC0-1AHU

| | HVAC Airside Equipment - General Information | | | | Est. Airside/Fan Data (Evap. Fan) | | | | | Est. Heating Load | | Heating Type (Est. Flows/KW) | | | Coil |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HVAC Item | Design/Site Designation | Equip. Type | Field Data/Reference/(Location) | Area Served | Flowrate (cfm) | OA (cfm) | TSP (in w.g.) | Supp.Fan (hp) | RA/OA (hp) | Heating (MBH) | Re-Heat (MBH) | Steam (lb/hr) | MCA-HW (gpm) | Electric (Kw) | Line Size (inches) |
| 1 | - | AHU | McQuay LML(OA418 - JCALS) | Cafeteria | 21,300 | 2,130 | 3 | 20 | | 492 | 0 | N/A | 49 | N/A | 2" |
| 4 | - | AHU | unknown(OA400) | OA400 (J-CALS) | 21,300 | 2,130 | 3 | 20 | | 492 | 0 | N/A | 49 | N/A | 2" |
| 26 | - | AHU | unknown(1B115) | 1B115 office/storage | 3600 | 540 | 3 | 3 | | 40 | 0 | N/A | 4.0 | N/A | 3/4" |
| 34 | - | AHU | Comfort Air(1B138) | 1B138 Offices | 3,810 | 572 | 2 | 2 | | 42 | 0 | N/A | 4.2 | N/A | 3/4" |
| 35 | AC-1(New) | AHU | Dunham Bush(1B142) | 1B142 | 8,700 | 1,305 | 2.6 | 7.5 | | 96 | 0 | N/A | 10 | N/A | 1 1/4" |
| 36 | - | AHU | Chrysler 1005(1B141A) | 1B141A | 1,905 | 286 | 2 | 1 | | 21 | 0 | N/A | 2.1 | N/A | 3/4" |
| 47 | - | AHU | Carrier 50(1B202 - Photography) | 1B202 | 1,905 | 286 | 2 | 1 | | 21 | 0 | N/A | 2.1 | N/A | 3/4" |
| 48 | - | AHU | Trane SAHB(1B205 - EMS Room) | 1B205 | 2,286 | 343 | 2 | 1 | | 25 | 0 | N/A | 2.5 | N/A | 3/4" |
| 50 | - | AHU | Chrysler 1005(1B212) | 1B212 | 1,905 | 286 | 2 | 1 | | 21 | 0 | N/A | 2.1 | N/A | 3/4" |
| 89 | - | AHU | McQuay LSL(Auditorium M-Area) | Auditorium | 7,700 | 1,540 | 3 | 7.5 | | 110 | 0 | N/A | 11 | N/A | 1 1/4" |
| 90 | - | AHU | McQuay LSL(Auditorium M-Area) | Auditorium | 7,700 | 1,540 | 3 | 7.5 | | 110 | 0 | N/A | 11 | N/A | 1 1/4" |
| 91 | AC-1 | AHU | unknown(MR - 1aB138/Mezz.) | 1aB138 Mezz. Area | 8,165 | 1,650 | 2 | 5 | | 132 | 0 | N/A | 13 | N/A | 1 1/4" |
| 94 | AC-2 | AHU | unknown(MR - 21 South 2C/D100 Area) | 2D110 offices | 11,800 | 800 | 1 | 5 | | 128 | 0 | N/A | 13 | N/A | 1 1/4" |
| 97 | AC-3 | AHU | unknown(MR - 22 North 2C/D100 Area) | 2D130 electronics lab | 10,200 | 2,100 | 2 | 5 | | 209 | 0 | N/A | 21 | N/A | 1 1/2" |
| 106 | AC-14 | AHU | unknown(MR - 23 East 2C/D200 Area) | 2D306 lab area | 16,520 | 2,250 | 2 | 7.5 | | 393 | 0 | N/A | 39 | N/A | 2" |
| 131 | - | (2)AHU | York(MR - 33 East 3C/D200 Area) | 3D306-3C321 lab area | 32,000 | 3,200 | 3 | 30 | | 458 | 0 | N/A | 46 | N/A | 2" |
| 135 | - | AHU | Climatrol(MR-34 South 3C/D300 Area) | 3D330 Cleanroom | 25,000 | 5,000 | 3 | 20 | | 358 | 0 | N/A | 36 | N/A | 2" |
| 152 | AC-7 | AHU | unknown(MR - 41 South 4C/D100 Area) | 4D110 lab/offices | 16,300 | 2,000 | 3 | 10 | | 264 | 0 | N/A | 26 | N/A | 1 1/2" |
| | | | | Basement, First, Second, Third and Fourth Floors | 202,096 | 27,957 | N/A | 154 | 0 | 3,411 | 0 | 0 | 341 | 0 | - |

## FT. MONMOUTH, DEPARTMENT OF THE ARMY
## BUILDING 2700 UH SWITCHOVER FROM STEAM TO MCA HOT WATER UNIT HEATERS

### TABLE EC0-1UH

| | HVAC Airside Equipment - General Information | | | | Est. Airside/Fan Data (Evap. Fan) | | | | | Est. Heating Load | | Heating Type (Est. Flows/KW) | | | Coil |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HVAC Item | Design/Site Designation | Equip. Type | Field Data/Reference/(Location) | Area Served | Flowrate (cfm) | OA (cfm) | TSP (in w.g.) | Supp.Fan (hp) | RA/OA (hp) | Heating (MBH) | Re-Heat (MBH) | Steam (lb/hr) | MCA-HW (gpm) | Electric (Kw) | Line Size (inches) |
| 15 | - | UH | unknown(OA501-storage) | OA501 | 320 | 0 | 0.5 | 0.04 | | 20 | 0 | N/A | 2.0 | N/A | 3/4" |
| 16 | - | UH | unknown(OA503-storage) | OA503 | 320 | 0 | 0.5 | 0.04 | | 20 | 0 | N/A | 2.0 | N/A | 3/4" |
| 17 | - | UH | unknown(OA321-hallway) | OA321 | 320 | 0 | 0.5 | 0.04 | | 20 | 0 | N/A | 2.0 | N/A | 3/4" |
| 18 | - | UH | unknown(OA326-Substations #2 & 6) | OA326 | 320 | 0 | 0.5 | 0.04 | | 20 | 0 | N/A | 2.0 | N/A | 3/4" |
| 19 | - | UH | unknown(OA328-Substations #2 & 6) | OA328 | 320 | 0 | 0.5 | 0.04 | | 20 | 0 | N/A | 2.0 | N/A | 3/4" |
| 37 | - | UH | unknown(Stairway #1) | Stairway #1 | 250 | 0 | 0.5 | 0.04 | | 15 | 0 | N/A | 1.5 | N/A | 3/4" |
| 38 | - | UH | unknown(1B107 - storage) | 1B107 | 640 | 0 | 0.5 | 0.1 | | 40 | 0 | N/A | 4.0 | N/A | 3/4" |
| 39 | - | UH | unknown(1B109 - storage) | 1B109 | 640 | 0 | 0.5 | 0.1 | | 40 | 0 | N/A | 4.0 | N/A | 3/4" |
| 40 | - | UH | unknown(1B111- storage) | 1B111 | 640 | 0 | 0.5 | 0.1 | | 40 | 0 | N/A | 4.0 | N/A | 3/4" |
| 41 | - | UH | unknown (1B109 - storage) | 1B107 | 250 | 0 | 0.5 | 0.04 | | 15 | 0 | N/A | 1.5 | N/A | 3/4" |
| 42 | - | UH | unknown (1B110 - shop) | 1B110 | 500 | 0 | 0.5 | 0.1 | | 30 | 0 | N/A | 3.0 | N/A | 3/4" |
| 43 | - | UH | unknown(Stairway #3) | Stairway #3 | 250 | 0 | 0.5 | 0.04 | | 15 | 0 | N/A | 1.5 | N/A | 3/4" |
| 51 | - | UH | unknown (1B212 - shop) | 1B212 | 500 | 0 | 0.5 | 0.1 | | 30 | 0 | N/A | 3.0 | N/A | 3/4" |
| 60 | - | UH | unknown(Stairway #4) | Stairway #4 | 200 | 0 | 0.5 | 0.03 | | 10 | 0 | N/A | 1.0 | N/A | 3/4" |
| 61 | - | UH | unknown(1B307)) | 1B307 | 1,000 | 0 | 0.5 | 0.15 | | 66 | 0 | N/A | 6.6 | N/A | 1" |
| 62 | UH-21 | UH | unknown(hallway near 1B322) | hallway | 320 | 0 | 0.5 | 0.05 | | 20 | 0 | N/A | 2.0 | N/A | 3/4" |
| 63 | - | UH | unknown(1B321 Receiving) | 1B321 | 1,300 | 0 | 0.5 | 0.20 | | 84 | 0 | N/A | 8.4 | N/A | 1 1/4" |
| 64 | - | UH | unknown(1B321 Receiving) | 1B321 | 1,300 | 0 | 0.5 | 0.20 | | 84 | 0 | N/A | 8.4 | N/A | 1 1/4" |
| 66 | UH-23 | UH | unknown(Stairway #6) | Stairway #6 | 200 | 0 | 0.5 | 0.03 | | 10 | 0 | N/A | 1.0 | N/A | 3/4" |
| 79 | - | UH | unknown(Stairway #7) | Stairway #7 | 320 | 0 | 0.5 | 0.05 | | 15 | 0 | N/A | 1.5 | N/A | 3/4" |
| 80 | - | UH | unknown(Stairway #11) | Stairway #11 | 200 | 0 | 0.5 | 0.03 | | 10 | 0 | N/A | 1.0 | N/A | 3/4" |
| | | | | Basement and First Floors | 9,150 | 0 | N/A | 1 | 0 | 564 | 0 | 0 | 62 | 0 | - |

To determine cost estimates for these steam to MCA hot water changeouts, we must first develop costs for each coil/unit heater replacement. Unit costs for material and labor were developed for each size based on Means Estimating Methods and they are tabled below. An estimated 200 linear feet of piping has been assumed for each new MCA HW user.

| Pipe Size | Control Valve | | Balancing Valve | | Y-Strainer | | Misc. Valves | | Piping | | Total Cost | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mat'l | Labor | Mat'l | Labor | Mat'l | Labor | Mat'l | Labor | Mat'l | Labor | Mat'l | Labor |
| 3/4" | 600 | 50 | 40 | 10 | 10 | 15 | 60 | 75 | 800 | 800 | $1,510 | $950 |
| 1" | 700 | 60 | 50 | 15 | 15 | 15 | 95 | 90 | 1,000 | 800 | $1,860 | $980 |
| 1-1/4" | 850 | 70 | 60 | 20 | 20 | 20 | 150 | 120 | 1,200 | 1,000 | $2,280 | $1,230 |
| 1-1/2" | 900 | 100 | 70 | 25 | 30 | 25 | 180 | 150 | 1,400 | 1,200 | $2,580 | $1,500 |
| 2" | 1,000 | 120 | 100 | 50 | 40 | 30 | 250 | 200 | 1,600 | 1,600 | $2,990 | $2,000 |

From these unit costs we can proceed in determining the estimated costs for material and labor for each unit being reworked. The total costs for the AHU coils is approximately $60,000 for material and $54,400 for labor. As for replacing the unit heaters the costs are estimated to be $43,000 and $32,000 respectively for material and labor. These estimates are summarized in Tables ECO-1AHU-C and ECO-1UH-C.

## FT. MONMOUTH, DEPARTMENT OF THE ARMY
## BUILDING 2700 AHU SWITCHOVER FROM STEAM TO MCA HOT WATER COILS - COST ESTIMATE

### TABLE EC0-1AHU-C

| HVAC Item | HVAC Airside Equipment - General Information: Design/Site Designation | Equip. Type | Field Data/Reference/(Location) | Area Served | Demand MCA-HW (gpm) | Coil Line Size (inches) | AHU Unit Steam Coil Demo. Material | AHU Unit Steam Coil Demo. Labor | AHU Unit Hot Water Coil Material | AHU Unit Hot Water Coil Labor | Hot Water Coil Piping Costs Material | Hot Water Coil Piping Costs Labor | AHU Unit Total Rework Costs Material | AHU Unit Total Rework Costs Labor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | - | AHU | McQuay LML(OA418 - JCALS) | Cafeteria | 49 | 2" | $200 | $1,500 | $1,500 | $750 | $3,000 | $2,000 | $4,700 | $4,250 |
| 4 | - | AHU | unknown(OA400) | OA400 (J-CALS) | 49 | 2" | $200 | $1,500 | $1,500 | $750 | $3,000 | $2,000 | $4,700 | $4,250 |
| 26 | - | AHU | unknown(1B115) | 1B115 office/storage | 4 | 3/4" | $200 | $1,000 | $300 | $150 | $1,510 | $950 | $2,010 | $2,100 |
| 34 | - | AHU | *Comfort Air(1B138)* | *1B138 Offices* | 4 | 3/4" | $200 | $1,000 | $300 | $150 | $1,510 | $950 | $2,010 | $2,100 |
| 35 | AC-1(New) | AHU | Dunham Bush(1B142) | 1B142 | 10 | 1 1/4" | $200 | $1,200 | $800 | $400 | $2,280 | $1,230 | $3,280 | $2,830 |
| 36 | - | AHU | Chrysler 1005(1B141A) | 1B141A | 2 | 3/4" | $200 | $1,000 | $300 | $150 | $1,510 | $950 | $2,010 | $2,100 |
| 47 | - | AHU | Carrier 50(1B202 - Photography) | 1B202 | 2 | 3/4" | $200 | $1,000 | $300 | $150 | $1,510 | $950 | $2,010 | $2,100 |
| 48 | - | AHU | Trane SAHB(1B205 - EMS Room) | 1B205 | 3 | 3/4" | $200 | $1,000 | $300 | $150 | $1,510 | $950 | $2,010 | $2,100 |
| 50 | - | AHU | Chrysler 1005(1B212) | 1B212 | 2 | 3/4" | $200 | $1,000 | $300 | $150 | $1,510 | $950 | $2,010 | $2,100 |
| 89 | - | AHU | McQuay LSL(*Auditorium M-Area*) | *Auditorium* | 11 | 1 1/4" | $200 | $1,200 | $800 | $400 | $2,280 | $1,230 | $3,280 | $2,830 |
| 90 | - | AHU | McQuay LSL(Auditorium M-Area) | Auditorium | 11 | 1 1/4" | $200 | $1,200 | $800 | $400 | $2,280 | $1,230 | $3,280 | $2,830 |
| 91 | AC-1 | AHU | unknown(MR - 1aB138/Mezz.) | 1aB138 Mezz. Area | 13 | 1 1/4" | $200 | $1,200 | $800 | $400 | $2,280 | $1,230 | $3,280 | $2,830 |
| 94 | AC-2 | AHU | unknown(MR - 21 South 2C/D100 Area) | 2D110 offices | 13 | 1 1/4" | $200 | $1,200 | $800 | $400 | $2,280 | $1,230 | $3,280 | $2,830 |
| 97 | AC-3 | AHU | unknown(MR - 22 North 2C/D100 Area) | 2D130 electronics lab | 21 | 1 1/2" | $200 | $1,200 | $1,000 | $500 | $2,580 | $1,500 | $3,780 | $3,200 |
| 106 | AC-14 | AHU | unknown(MR - 23 East 2C/D200 Area) | 2D306 lab area | 39 | 2" | $200 | $1,500 | $1,500 | $750 | $3,000 | $2,000 | $4,700 | $4,250 |
| 131 | - | (2)AHU | York(MR - 33 East 3C/D200 Area) | 3D306-3C321 lab area | 46 | 2" | $200 | $1,500 | $1,500 | $750 | $3,000 | $2,000 | $4,700 | $4,250 |
| 135 | - | AHU | Climatrol(MR-34 South 3C/D300 Area) | 3D330 Cleanroom | 36 | 2" | $200 | $1,500 | $1,500 | $750 | $3,000 | $2,000 | $4,700 | $4,250 |
| 152 | AC-7 | AHU | unknown(MR - 41 South 4C/D100 Area) | 4D110 lab/offices | 26 | 1 1/2" | $200 | $1,200 | $1,000 | $500 | $2,580 | $1,500 | $3,780 | $3,200 |
| | | | | Basement, First, Second, Third and Fourth Floors | 341 | - | $3,600 | $21,900 | $15,300 | $7,650 | $40,620 | $24,850 | $59,520 | $54,400 |

## FT. MONMOUTH, DEPARTMENT OF THE ARMY
## BUILDING 2700 UH SWITCHOVER FROM STEAM TO MCA HOT WATER UNIT HEATERS - COST ESTIMATE

### TABLE EC0-1UH - C

| HVAC Item | HVAC Airside Equipment - General Information: Design/Site Designation | Equip. Type | Field Data/Reference/(Location) | Area Served | Demand MCA-HW (gpm) | Coil Line Size (inches) | Steam Unit Heater Demolition Costs. Material | Steam Unit Heater Demolition Costs. Labor | HW Unit Heater Installation Costs Material | HW Unit Heater Installation Costs Labor | HW Unit Heater Piping Costs Material | HW Unit Heater Piping Costs Labor | Unit Heater Total Rework Costs Material | Unit Heater Total Rework Costs Labor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | - | UH | unknown(OA501-storage) | OA501 | 2 | 3/4" | $50 | $500 | $700 | $300 | $1,510 | $950 | $2,260 | $1,750 |
| 16 | - | UH | unknown(OA503-storage) | OA503 | 2 | 3/4" | $50 | $500 | $700 | $300 | $1,510 | $950 | $2,260 | $1,750 |
| 17 | - | UH | unknown(OA321-hallway) | OA321 | 2 | 3/4" | $50 | $500 | $700 | $300 | $1,510 | $950 | $2,260 | $1,750 |
| 18 | - | UH | unknown(OA326-Substations #2 & 6) | OA326 | 2 | 3/4" | $50 | $500 | $700 | $300 | $1,510 | $950 | $2,260 | $1,750 |
| 19 | - | UH | unknown(OA328-Substations #2 & 6) | OA328 | 2 | 3/4" | $50 | $500 | $700 | $300 | $1,510 | $950 | $2,260 | $1,750 |
| 37 | - | UH | *unknown(Stairway #1)* | *Stairway #1* | 1.5 | 3/4" | $50 | $500 | $700 | $300 | $1,510 | $950 | $2,260 | $1,750 |
| 38 | - | UH | unknown(1B107 - storage) | 1B107 | 4 | 3/4" | $50 | $500 | $700 | $300 | $1,510 | $950 | $2,260 | $1,750 |
| 39 | - | UH | unknown(1B109 - storage) | 1B109 | 4 | 3/4" | $50 | $500 | $700 | $300 | $1,510 | $950 | $2,260 | $1,750 |
| 40 | - | UH | unknown(1B111- storage) | 1B111 | 4 | 3/4" | $50 | $500 | $700 | $300 | $1,510 | $950 | $2,260 | $1,750 |
| 41 | - | UH | unknown (1B109 - storage) | 1B107 | 1.5 | 3/4" | $50 | $500 | $700 | $300 | $1,510 | $950 | $2,260 | $1,750 |
| 42 | - | UH | unknown (1B110 - shop) | 1B110 | 3 | 3/4" | $50 | $500 | $700 | $300 | $1,510 | $950 | $2,260 | $1,750 |
| 43 | - | UH | *unknown(Stairway #3)* | *Stairway #3* | 1.5 | 3/4" | $50 | $500 | $700 | $300 | $1,510 | $950 | $2,260 | $1,750 |
| 51 | - | UH | unknown (1B212 - shop) | 1B212 | 3 | 3/4" | $50 | $500 | $700 | $300 | $1,510 | $950 | $2,260 | $1,750 |
| 60 | - | UH | unknown(Stairway #4) | Stairway #4 | 1 | 3/4" | $50 | $500 | $700 | $300 | $1,510 | $950 | $2,260 | $1,750 |
| 61 | - | UH | unknown(1B307)) | 1B307 | 6.6 | 1" | $50 | $500 | $800 | $300 | $1,860 | $980 | $2,710 | $1,780 |
| 62 | UH-21 | UH | unknown(hallway near 1B322) | hallway | 2 | 3/4" | $50 | $500 | $700 | $300 | $1,510 | $950 | $2,260 | $1,750 |
| 63 | - | UH | unknown(1B321 Receiving) | 1B321 | 8.4 | 1 1/4" | $50 | $500 | $1,000 | $400 | $2,280 | $1,230 | $3,330 | $2,130 |
| 64 | - | UH | unknown(1B321 Receiving) | 1B321 | 8.4 | 1 1/4" | $50 | $500 | $1,000 | $400 | $2,280 | $1,230 | $3,330 | $2,130 |
| 66 | UH-23 | UH | unknown(Stairway #6) | Stairway #6 | 1 | 3/4" | $50 | $500 | $700 | $300 | $1,510 | $950 | $2,260 | $1,750 |
| 79 | - | UH | unknown(Stairway #7) | Stairway #7 | 1.5 | 3/4" | $50 | $500 | $700 | $300 | $1,510 | $950 | $2,260 | $1,750 |
| 80 | - | UH | unknown(Stairway #11) | Stairway #11 | 1 | 3/4" | $50 | $500 | $700 | $300 | $1,510 | $950 | $2,260 | $1,750 |
| | | | | Basement and First Floors | 62 | - | $900 | $9,000 | $13,300 | $5,600 | $29,070 | $17,690 | $43,270 | $32,290 |

The cost estimate including factors for Material (10%) and Labor (55%), Overhead and Profit, Contingency (10%) and the Life Cycle Analyses for SIOH (5.5%), and the Design Fee (6%) can now be completed for the first of six (6) changes for Building 2700 Boiler Plan Decentralization. From the cost estimate attached we can see that the construction cost estimate to change the steam coils and unit heaters in Building 2700 to MCA hot water is approximately $417,000. Note, the contingency for this option was increased from 15% to 18% to accommodate the installation of unit heaters in the existing boiler plant area. The energy used by these is considered to be minor and therefore not included in the analysis.

## FORT MONMOUTH
## PROJECT COST ESTIMATE

***BUILDING 2700 DECENTRALIZATION (EC0-1 - CH #1) - STEAM AHU COILS & UNIT HEATERS TO MCA HW***

| NO. | DESCRIPTION | QTY | UNIT | MATERIAL | | LABOR | | TOTAL BARE COST | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | $/UNIT | COST | $/UNIT | COST | | |
| 1 | Replace AHU Steam Coils w/MCA HW Coils | 1 | Lot | $59,500.00 | $59,500 | $54,400.00 | $54,400 | $113,900 | See Table ECO-1AHU-C |
| 2 | Replace Steam Unit Heaters w/MCA UH's | 1 | Lot | $43,300.00 | $43,300 | $32,300.00 | $32,300 | $75,600 | See Table ECO-1UH-C |
| 3 | Replace (3) Existing MCA HW Pumps | 3 | Each | $3,000.00 | $9,000 | $2,000.00 | $6,000 | $15,000 | Including Demolition & Foundation Work |
| 4 | Electrical wiring, connections, etc. for Pumps | 3 | Each | $1,000.00 | $3,000 | $2,000.00 | $6,000 | $9,000 | Including Demolition |
| 5 | Rework Piping Around Pumps | 1 | Lot | $3,000.00 | $3,000 | $5,000.00 | $5,000 | $8,000 | In Building 2706 |
| 6 | Control Adjustments, etc. | 1 | Lot | $500.00 | $500 | $1,000.00 | $1,000 | $1,500 | |
| 7 | Misc. Reworking of Distribution Pipng | 1 | Lot | $3,000.00 | $3,000 | $3,000.00 | $3,000 | $6,000 | |
| 8 | System Balancing | 1 | Lot | $1,000.00 | $1,000 | $10,000.00 | $10,000 | $11,000 | |
| 9 | | | | | $0 | | $0 | $0 | |
| 10 | | | | | $0 | | $0 | $0 | |
| 11 | | | | | $0 | | $0 | $0 | |
| 12 | | | | | $0 | | $0 | $0 | |
| 13 | | | | | $0 | | $0 | $0 | |
| 14 | | | | | $0 | | $0 | $0 | |
| 15 | | | | | $0 | | $0 | $0 | |
| 16 | | | | | $0 | | $0 | $0 | |
| 17 | | | | | $0 | | $0 | $0 | |
| 18 | | | | | $0 | | $0 | $0 | |
| 19 | | | | | $0 | | $0 | $0 | |
| 20 | | | | | $0 | | $0 | $0 | |
| 21 | | | | | $0 | | $0 | $0 | |
| 22 | | | | | $0 | | $0 | $0 | |
| 23 | | | | | $0 | | $0 | $0 | |
| 24 | | | | | $0 | | $0 | $0 | |
| 25 | | | | | $0 | | $0 | $0 | |
| 26 | | | | | $0 | | $0 | $0 | |
| 27 | | | | | $0 | | $0 | $0 | |
| | SUBTOTAL | | | | | | | $240,000 | |
| | OVERHEAD AND PROFIT | | | | $12,200 | | $64,700 | $76,900 | |
| | CITY COST INDEX MULTIPLIER | | | | | | | | |
| | *DIFFICULTY FACTOR* | | | | | | | | |
| | CONTINGENCY (18 %) | | | | $24,200 | | $32,800 | $57,000 | |
| | SIOH(5.5%) & DESIGN FEE(6%) | | | 21,000 | | 22,000 | | $43,000 | |
| | **BASE TOTAL COST** | | | | $159,000 | | $215,000 | $417,000 | |

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18-Jun-96

2. Building 2700 - Cleanroom Loads Converted to New Steam Boilers on the Fourth Floor (for Hot Water Boilers see ECO-1B)

Three (3) cleanrooms on the fourth floor and one (1) small cleanroom on the second floor require reheat year round. Presently these areas are supported by the building steam distribution system which is being considered for abandonment through this decentralization ECO. Since the MCA hot water system is only available for about seven months out of the year, another source is required.

In place of the existing steam system to these cleanroom units, Entech proposes that Machine Room #43 be converted into a boiler room. Fire rated doors, and dampers for air shaft connections, shall be required to make this room acceptable for steam production. Some demolition will also be needed to clear the room for the boilers, etc. Per the appropriate military guidelines, the individual sizing of the two boilers is 780 lb/hr or 25 HP which is 65% of the overall peak requirement of about 1,200 lbs/hr of steam. The installation will require not only the two boilers and the above mentioned room changes but also support equipment including condensate receiver/pump set, chemical treatment, electrical work, and the piping from Machine Room #43 to the applicable cleanrooms.

The total cost for converting the Building 2700 cleanroom loads to a dedicated steam boiler system is estimated to be about $289,000.

# FORT MONMOUTH
# PROJECT COST ESTIMATE

***BUILDING 2700 DECENTRALIZATION (ECO-1 - CH #2) - CLEANROOM STEAM LOADS TO NEW STEAM BOILERS (MR #43)***

| NO. | DESCRIPTION | QTY | UNIT | MATERIAL | | LABOR | | TOTAL BARE COST | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | $/UNIT | COST | $/UNIT | COST | | |
| 1 | Demolition/Removal of Abandoned Equipment | 1 | Lot | $3,000.00 | $3,000 | $5,000.00 | $5,000 | $8,000 | |
| 2 | Install (2) Large Fire Doors | 2 | Each | $2,000.00 | $4,000 | $500.00 | $1,000 | $5,000 | |
| 3 | Seal Penetrations | 1 | Lot | $1,000.00 | $1,000 | $2,000.00 | $2,000 | $3,000 | |
| 4 | Install (2) Duct Mounted Fire Dampers | 2 | Each | $500.00 | $1,000 | $1,000.00 | $2,000 | $3,000 | |
| 5 | *Install (2) 25 HP Steam Boilers* | 2 | Each | $15,000.00 | $30,000 | $7,000.00 | $14,000 | $44,000 | Including Foundation Work |
| 6 | Install Primary Condensate Receiver/Pumps Se | 1 | Lot | $500.00 | $500 | $1,000.00 | $1,000 | $1,500 | Including Foundation Work |
| 7 | Install Chemical Feed System | 1 | Lot | $1,500.00 | $1,500 | $1,000.00 | $1,000 | $2,500 | |
| 8 | Electrical Work for Pumps, Boiler Fans, etc. | 1 | Lot | $3,000.00 | $3,000 | $6,000.00 | $6,000 | $9,000 | |
| 9 | Steam Piping to 4TH Floor Cleanrooms | 1,000 | Each | $13.00 | $13,000 | $11.00 | $11,000 | $24,000 | Including Insulation |
| 10 | Condensate Piping to 4TH Floor Cleanrooms | 1,000 | Each | $8.00 | $8,000 | $8.00 | $8,000 | $16,000 | Including Insulation |
| 11 | Steam Piping to 2ND Floor Cleanrooms | 500 | Each | $8.00 | $4,000 | $8.00 | $4,000 | $8,000 | Including Insulation |
| 12 | Condensate Piping to 2ND Floor Cleanrooms | 500 | Each | $7.00 | $3,500 | $7.00 | $3,500 | $7,000 | Including Insulation |
| 13 | Miscellaneous Steam Valves, Strainers, etc. | 1 | Lot | $8,000.00 | $8,000 | $2,000.00 | $2,000 | $10,000 | |
| 14 | Condensate Pump Sets For Cleanrroom Feeds | 2 | Lot | $300.00 | $600 | $800.00 | $1,600 | $2,200 | |
| 15 | Make-up Water Feed including Valving | 500 | Each | $7.00 | $3,500 | $7.00 | $3,500 | $7,000 | Including Insulation |
| 16 | Natural Gas Piping From First Floor | 1,000 | Each | $5.00 | $5,000 | $5.00 | $5,000 | $10,000 | |
| 17 | Miscellaneous Natural Gas Valves, Strainers, et | 1 | Lot | $3,000.00 | $3,000 | $500.00 | $500 | $3,500 | |
| 18 | Provide Vent Stack(s) Thru Roof | 2 | Each | $3,000.00 | $6,000 | $2,000.00 | $4,000 | $10,000 | |
| 19 | | | | | $0 | | $0 | $0 | |
| 20 | | | | | $0 | | $0 | $0 | |
| 21 | | | | | $0 | | $0 | $0 | |
| 22 | | | | | $0 | | $0 | $0 | |
| 23 | | | | | $0 | | $0 | $0 | |
| 24 | | | | | $0 | | $0 | $0 | |
| 25 | | | | | $0 | | $0 | $0 | |
| 26 | | | | | $0 | | $0 | $0 | |
| 27 | | | | | $0 | | $0 | $0 | |
| | SUBTOTAL | | | | | | | $173,700 | |
| | OVERHEAD AND PROFIT | | | | $9,900 | | $41,300 | $51,200 | |
| | CITY COST INDEX MULTIPLIER | | | | | | | | |
| | DIFFICULTY FACTOR | | | | | | | | |
| | CONTINGENCY (15 %) | | | | $16,300 | | $17,500 | $33,800 | |
| | SIOH(5.5%) & DESIGN FEE(6%) | | | 14,000 | | 16,000 | | $30,000 | |
| | **BASE TOTAL COST** | | | | $125,000 | | $134,000 | $289,000 | |

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3. Building 2700 - Domestic Hot Water

The domestic hot water loads will be dedicated to a new gas-fired hot water generator located in the old boiler plant in the basement. The generator replaces existing steam fed heat exchangers that have failed in recent years. The circulating pumps which had also failed, in 1995, will be assumed to be either repaired or replaced and subsequently not in the construction estimate for this change.

The total cost for converting the domestic hot water load to a nominal 1200 mmBtu/hr (output) generator with a 1500 gallon storage capacity is estimated to be near $54,000.

## FORT MONMOUTH
## PROJECT COST ESTIMATE

***BUILDING 2700 DECENTRALIZATION (EC0-1 - CH #3) - NEW DOMESTIC HOT WATER GENERATOR IN EXISTING BOILER ROOM***

| NO. | DESCRIPTION | QTY | UNIT | MATERIAL | | LABOR | | TOTAL BARE COST | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | $/UNIT | COST | $/UNIT | COST | | |
| 1 | Demolition/Removal of Abandoned Equipment | 1 | Lot | $3,000.00 | $3,000 | $3,000.00 | $3,000 | $6,000 | |
| 2 | Install New Natural Gas DHW Generator | 1 | Each | $8,000.00 | $8,000 | $4,000.00 | $4,000 | $12,000 | Including Foundation Work |
| 3 | Electrical Work for Controls, etc. | 1 | Lot | $1,000.00 | $1,000 | $1,000.00 | $1,000 | $2,000 | |
| 4 | Provide Vent Stack(s) Thru Roof | 1 | Each | $3,000.00 | $3,000 | $2,000.00 | $2,000 | $5,000 | |
| 5 | Natural Gas Piping From Local Connection | 200 | Each | $5.00 | $1,000 | $5.00 | $1,000 | $2,000 | |
| 6 | Natural Gas Valving | 1 | Lot | $1,000.00 | $1,000 | $2,000.00 | $2,000 | $3,000 | |
| 7 | Rework Existing DHW Piping | 1 | Lot | $1,000.00 | $1,000 | $1,000.00 | $1,000 | $2,000 | |
| 8 | | | | | $0 | | $0 | $0 | |
| 9 | | | | | $0 | | $0 | $0 | |
| 10 | | | | | $0 | | $0 | $0 | |
| 11 | | | | | $0 | | $0 | $0 | |
| 12 | | | | | $0 | | $0 | $0 | |
| 13 | | | | | $0 | | $0 | $0 | |
| 14 | | | | | $0 | | $0 | $0 | |
| 15 | | | | | $0 | | $0 | $0 | |
| 16 | | | | | $0 | | $0 | $0 | |
| 17 | | | | | $0 | | $0 | $0 | |
| 18 | | | | | $0 | | $0 | $0 | |
| 19 | | | | | $0 | | $0 | $0 | |
| 20 | | | | | $0 | | $0 | $0 | |
| 21 | | | | | $0 | | $0 | $0 | |
| 22 | | | | | $0 | | $0 | $0 | |
| 23 | | | | | $0 | | $0 | $0 | |
| 24 | | | | | $0 | | $0 | $0 | |
| 25 | | | | | $0 | | $0 | $0 | |
| 26 | | | | | $0 | | $0 | $0 | |
| 27 | | | | | $0 | | $0 | $0 | |
| | SUBTOTAL | | | | | | | $32,000 | |
| | OVERHEAD AND PROFIT | | | | $1,800 | | $7,700 | $9,500 | |
| | CITY COST INDEX MULTIPLIER | | | | | | | | |
| | DIFFICULTY FACTOR | | | | | | | | |
| | CONTINGENCY (15 %) | | | | $3,000 | | $3,300 | $6,300 | |
| | SIOH(5.5%) & DESIGN FEE(6%) | | | 3,000 | | 3,000 | | $6,000 | |
| | BASE TOTAL COST | | | | $23,000 | | $25,000 | $54,000 | |

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4. Building 2700 - Cafeteria Equipment Operating on Steam Converted to Gas-Fired:

The Cafeteria has operated with equipment that will now be replaced as part of the decentralization of Building 2700 Boiler Plant. Four (4) pieces of equipment used for cooking, warming or dishwashing will be replaced by gas-fired equipment. The estimated cost to install the equipment alone was given by Fort Monmouth personnel equating to about $18,000.

Miscellaneous work outside the scope for actual equipment replacement is estimated to bring the costs up to about $35,000 for this particular change. These changes are expected to have no impact on the electric model.

# FORT MONMOUTH
# PROJECT COST ESTIMATE

***BUILDING 2700 DECENTRALIZATION (EC0-1 - CH #4) - NEW GAS FIRED CAFETERIA EQUIPMENT***

| NO. | DESCRIPTION | QTY | UNIT | MATERIAL $/UNIT | MATERIAL COST | LABOR $/UNIT | LABOR COST | TOTAL BARE COST | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Demolition/Removal of Existing Equipment | 1 | Lot | $1,000.00 | $1,000 | $1,500.00 | $1,500 | $2,500 | |
| 2 | *Install New Natural Gas-Fired Cafe. Equipment* | 1 | Lot | $8,000.00 | $8,000 | $3,000.00 | $3,000 | $11,000 | |
| 3 | Electrical Work for Controls, etc. | 1 | Lot | $1,000.00 | $1,000 | $1,000.00 | $1,000 | $2,000 | |
| 4 | Provide Vent Stack(s) Thru Roof | 1 | Each | $1,000.00 | $1,000 | $1,000.00 | $1,000 | $2,000 | |
| 5 | *Natural Gas Piping From Local Connection* | 200 | Each | $5.00 | $1,000 | $5.00 | $1,000 | $2,000 | |
| 6 | Natural Gas Valving | 1 | Lot | $1,000.00 | $1,000 | $1,000.00 | $1,000 | $2,000 | |
| 7 | | | | | $0 | | $0 | $0 | |
| 8 | | | | | $0 | | $0 | $0 | |
| 9 | | | | | $0 | | $0 | $0 | |
| 10 | | | | | $0 | | $0 | $0 | |
| 11 | | | | | $0 | | $0 | $0 | |
| 12 | | | | | $0 | | $0 | $0 | |
| 13 | | | | | $0 | | $0 | $0 | |
| 14 | | | | | $0 | | $0 | $0 | |
| 15 | | | | | $0 | | $0 | $0 | |
| 16 | | | | | $0 | | $0 | $0 | |
| 17 | | | | | $0 | | $0 | $0 | |
| 18 | | | | | $0 | | $0 | $0 | |
| 19 | | | | | $0 | | $0 | $0 | |
| 20 | | | | | $0 | | $0 | $0 | |
| 21 | | | | | $0 | | $0 | $0 | |
| 22 | | | | | $0 | | $0 | $0 | |
| 23 | | | | | $0 | | $0 | $0 | |
| 24 | | | | | $0 | | $0 | $0 | |
| 25 | | | | | $0 | | $0 | $0 | |
| 26 | | | | | $0 | | $0 | $0 | |
| 27 | | | | | $0 | | $0 | $0 | |
| | SUBTOTAL | | | | | | | $21,500 | |
| | OVERHEAD AND PROFIT | | | | $1,300 | | $4,700 | $6,000 | |
| | CITY COST INDEX MULTIPLIER | | | | | | | | |
| | DIFFICULTY FACTOR | | | | | | | | |
| | CONTINGENCY (15 %) | | | | $2,100 | | $1,800 | $3,900 | |
| | SIOH(5.5%) & DESIGN FEE(6%) | | | 2,000 | | 2,000 | | $4,000 | |
| | BASE TOTAL COST | | | | $16,000 | | $15,000 | $35,000 | |

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02-Jul-96

5. Building 2704 - Heating Load Replacement with New Steam Boilers:

New steam boilers are proposed for supporting the heating loads for Building 2704. A new building/room must be added to accommodate the new boilers. The sizing for each of the two boilers is 65% of the peak load of 800 lbs/hr or 520 lbs/hr, thus equating to about a 16 HP of load for each. A nominal size of 20 HP would be the selection for these boilers.

The estimated cost to install the steam boilers in a new building addition to Building 2704 is $240,000.

# FORT MONMOUTH
# PROJECT COST ESTIMATE

***BUILDING 2700 DECENTRALIZATION (EC0-1 - CH #5) - BUILDING 2704 STEAM BOILERS***

| NO. | DESCRIPTION | QTY | UNIT | MATERIAL | | LABOR | | TOTAL BARE COST | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | $/UNIT | COST | $/UNIT | COST | | |
| 1 | Install New Building/Addition for Boilers | 1,500 | SF | $15.00 | $22,500 | $25.00 | $37,500 | $60,000 | |
| 2 | Install (2) 20 HP Steam Boilers | 2 | Each | $12,000.00 | $24,000 | $5,000.00 | $10,000 | $34,000 | Including Foundation Work |
| 3 | Install Primary Condensate Receiver/Pumps Se | 1 | Lot | $500.00 | $500 | $1,000.00 | $1,000 | $1,500 | Including Foundation Work |
| 4 | Install Chemical Feed System | 1 | Lot | $1,500.00 | $1,500 | $1,000.00 | $1,000 | $2,500 | |
| 5 | Electrical Work for Pumps, Boiler Fans, etc. | 1 | Lot | $2,000.00 | $2,000 | $4,000.00 | $4,000 | $6,000 | |
| 6 | Steam Piping to Existing Bldg. 2704 Header | 100 | Each | $8.00 | $800 | $8.00 | $800 | $1,600 | Including Insulation |
| 7 | Condensate Piping to Existing Bldg. 2704 Head | 100 | Each | $7.00 | $700 | $7.00 | $700 | $1,400 | Including Insulation |
| 8 | Miscellaneous Steam Valves, Strainers, etc. | 1 | Lot | $4,000.00 | $4,000 | $2,000.00 | $2,000 | $6,000 | |
| 9 | Make-up Water Feed including Valving | 100 | Each | $7.00 | $700 | $7.00 | $700 | $1,400 | Including Insulation |
| 10 | Undergrnd. Nat. Gas Piping From Outdoor Hea | 500 | Each | $10.00 | $5,000 | $25.00 | $12,500 | $17,500 | |
| 11 | Miscellaneous Natural Gas Valves, Strainers, et | 1 | Lot | $3,000.00 | $3,000 | $500.00 | $500 | $3,500 | |
| 12 | Provide Vent Stack(s) Thru Roof | 2 | Each | $1,500.00 | $3,000 | $1,000.00 | $2,000 | $5,000 | |
| 13 | | | | | $0 | | $0 | $0 | |
| 14 | | | | | $0 | | $0 | $0 | |
| 15 | | | | | $0 | | $0 | $0 | |
| 16 | | | | | $0 | | $0 | $0 | |
| 17 | | | | | $0 | | $0 | $0 | |
| 18 | | | | | $0 | | $0 | $0 | |
| 19 | | | | | $0 | | $0 | $0 | |
| 20 | | | | | $0 | | $0 | $0 | |
| 21 | | | | | $0 | | $0 | $0 | |
| 22 | | | | | $0 | | $0 | $0 | |
| 23 | | | | | $0 | | $0 | $0 | |
| 24 | | | | | $0 | | $0 | $0 | |
| 25 | | | | | $0 | | $0 | $0 | |
| 26 | | | | | $0 | | $0 | $0 | |
| 27 | | | | | $0 | | $0 | $0 | |
| | SUBTOTAL | | | | | | | $140,400 | |
| | OVERHEAD AND PROFIT | | | | $6,800 | | $40,000 | $46,800 | |
| | CITY COST INDEX MULTIPLIER | | | | | | | | |
| | DIFFICULTY FACTOR | | | | | | | | |
| | CONTINGENCY (15 %) | | | | $11,200 | | $16,900 | $28,100 | |
| | SIOH(5.5%) & DESIGN FEE(6%) | | | 12,000 | | 14,000 | | $26,000 | |
| | BASE TOTAL COST | | | | $86,000 | | $130,000 | $241,000 | |

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25-Jun-96

## 6. Building 2705 - Heating/Reheat Load Replacement with New Hot Water Boilers:

New hot water boilers are proposed for supporting the heating and reheat loads for Building 2705. A new building/room addition is required to accommodate the new boilers. The sizing for each of the two boilers is 65% of the peak load of 1,100 lbs/hr or 750 lbs/hr. This total equates to about 25 HP of boiler each. Two air handler steam coils and three steam unit heaters will be replaced by hot water equipment.

The estimated cost to install the hot water boilers in a new building addition to Building 2705 is $302,000.

**FORT MONMOUTH**
**PROJECT COST ESTIMATE**

***BUILDING 2700 DECENTRALIZATION (ECO-1 - CH #6) - BUILDING 2705 HOT WATER BOILERS***

| NO. | DESCRIPTION | QTY | UNIT | MATERIAL $/UNIT | MATERIAL COST | LABOR $/UNIT | LABOR COST | TOTAL BARE COST | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Install New Building/Addition for Boilers | 1,500 | SF | $15.00 | $22,500 | $25.00 | $37,500 | $60,000 | |
| 2 | Install (2) 25 HP Hot Water Boilers | 2 | Each | $15,000.00 | $30,000 | $6,000.00 | $12,000 | $42,000 | Including Foundation Work |
| 3 | Install (2) 7.5 HP Hot Water Pumps | 2 | Each | $1,500.00 | $3,000 | $1,000.00 | $2,000 | $5,000 | Including Foundation Work |
| 4 | Install Chemical Feed System | 1 | Lot | $1,500.00 | $1,500 | $1,000.00 | $1,000 | $2,500 | |
| 5 | Electrical Work for Pumps, Boiler Fans, etc. | 1 | Lot | $2,000.00 | $2,000 | $4,000.00 | $4,000 | $6,000 | |
| 6 | Hot Water Piping to Existing Bldg. 2705 Header | 100 | Each | $8.00 | $800 | $8.00 | $800 | $1,600 | Includes Insulation |
| 7 | New Hot Water Coils for AHU's | 2 | Each | $3,000.00 | $6,000 | $2,000.00 | $4,000 | $10,000 | |
| 8 | New Hot Water Unit Heaters | 3 | Each | $2,500.00 | $7,500 | $1,500.00 | $4,500 | $12,000 | |
| 9 | New Hot Water Piping | 200 | Each | $8.00 | $1,600 | $8.00 | $1,600 | $3,200 | |
| 10 | Miscellaneous HW Valves, Strainers, etc. | 1 | Lot | $8,000.00 | $8,000 | $4,000.00 | $4,000 | $12,000 | |
| 11 | Make-up Water Feed including Valving | 100 | Each | $7.00 | $700 | $7.00 | $700 | $1,400 | Includes Insulation |
| 12 | Undergrnd.Gas Piping From Outdoor Header | 500 | Each | $10.00 | $5,000 | $20.00 | $10,000 | $15,000 | |
| 13 | Miscellaneous Natural Gas Valves, Strainers, et | 1 | Lot | $3,000.00 | $3,000 | $500.00 | $500 | $3,500 | |
| 14 | Provide Vent Stack(s) Thru Roof | 2 | Each | $1,500.00 | $3,000 | $1,000.00 | $2,000 | $5,000 | |
| 15 | | | | | $0 | | $0 | $0 | |
| 16 | | | | | $0 | | $0 | $0 | |
| 17 | | | | | $0 | | $0 | $0 | |
| 18 | | | | | $0 | | $0 | $0 | |
| 19 | | | | | $0 | | $0 | $0 | |
| 20 | | | | | $0 | | $0 | $0 | |
| 21 | | | | | $0 | | $0 | $0 | |
| 22 | | | | | $0 | | $0 | $0 | |
| 23 | | | | | $0 | | $0 | $0 | |
| 24 | | | | | $0 | | $0 | $0 | |
| 25 | | | | | $0 | | $0 | $0 | |
| 26 | | | | | $0 | | $0 | $0 | |
| 27 | | | | | $0 | | $0 | $0 | |
| | SUBTOTAL | | | | | | | $179,200 | |
| | OVERHEAD AND PROFIT | | | | $9,500 | | $46,500 | $56,000 | |
| | CITY COST INDEX MULTIPLIER | | | | | | | | |
| | DIFFICULTY FACTOR | | | | | | | | |
| | CONTINGENCY (15 %) | | | | $15,600 | | $19,700 | $35,300 | |
| | SIOH(5.5%) & DESIGN FEE(6%) | | | 15,000 | | 16,000 | | $31,000 | |
| | BASE TOTAL COST | | | | $120,000 | | $151,000 | $302,000 | |

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## Building 2700 Boiler Plant Decentralization Summary

| Change | Material | Labor | SIOH | Design | Total |
|---|---|---|---|---|---|
| 1) Building 2700 Steam Coils to MCA HW | $159,000 | $215,000 | $21,000 | $22,000 | $417,000 |
| 2) Building 2700 Cleanrooms to Dedicated Boilers | $125,000 | $134,000 | $14,000 | $16,000 | $289,000 |
| 3) Building 2700 DHW to Dedicated Gas-fired Generator | $23,000 | $25,000 | $3,000 | $3,000 | $54,000 |
| 4) Building 2700 Cafeteria Equip. to Gas-fired | $16,000 | $15,000 | $2,000 | $2,000 | $35,000 |
| 5) Building 2704 Steam Boilers | $86,000 | $130,000 | $12,000 | $14,000 | $242,000 |
| 6) Building 2705 Hot Water Boilers | $120,000 | $151,000 | $15,000 | $16,000 | $302,000 |
| Totals | $529,000 | $670,000 | $67,000 | $73,000 | $1,339,000 |

**Construction Cost Estimate.** The total construction cost estimate to perform the six changes for decentralizing the Building 2700 boiler plant is approximately $1,340,000.

**Fuel Savings (Natural Gas).** The total yearly fuel savings associated with this ECO is

| Savings | Heating (mmBtu/yr) | Fuel (mmBtu/yr) | Nat. Gas (mcf/yr) | Fuel Cost ($/yr) |
|---|---|---|---|---|
| Totals | 27,000 | 36,685 | 35,580 | $267,000 |
| Percent Reduction | 53.8% | 55.8% | 55.8% | 55.8% |

**Electric Savings.** The total yearly electric savings associated with this ECO is

| Season | Demand (kW) | Off-Peak (kWh/yr) | On-Peak (kWh/yr) | Energy (mmBtu) | Cost ($/yr) |
|---|---|---|---|---|---|
| Non-Summer | (46) | (34,368) | (7,184) | (142) | ($3,048) |
| Summer | 56 | 13,980 | 7,904 | (75) | $1,959 |
| Totals | 10 | (20,388) | 720 | (67) | ($1,089) |
| Percent Reduction | 2.2% | -14.6% | 3.9% | -9.8% | -6.4% |

**Operation/Maintenance Savings.** The operation and maintenance savings associated with this ECO is $190,000 ($490,000 - $300,000).

**Discussion.** Payback = 2.9 years

SIR = 5.32

The payback for this ECO is 2.9 years. Decentraliztion of Building 2700's central boiler plant is recommended. The use of the existing plant for generating steam should be stopped when feasible.

LIFE CYCLE COST ANALYSIS SUMMARY — STUDY: MON1

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) — LCCID FY95 (92)

INSTALLATION & LOCATION: REGION NOS. 2 CENSUS: 1

PROJECT NO. & TITLE:

FISCAL YEAR DISCRETE PORTION NAME: ECO#1

ANALYSIS DATE: 07-03-96 ECONOMIC LIFE 20 YEARS PREPARED BY:

1. INVESTMENT

| | | | |
|---|---|---|---|
| A. CONSTRUCTION COST | $ 1199000. | | |
| B. SIOH | $ 67000. | | |
| C. DESIGN COST | $ 73000. | | |
| D. TOTAL COST (1A+1B+1C) | $ 1339000. | | |
| E. SALVAGE VALUE OF EXISTING EQUIPMENT | | $ 0. | |
| F. PUBLIC UTILITY COMPANY REBATE | | $ 0. | |
| G. TOTAL INVESTMENT (1D - 1E - 1F) | | | $ 1339000. |

2. ENERGY SAVINGS (+) / COST (-)

DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1995

| FUEL | UNIT COST $/MBTU(1) | SAVINGS MBTU/YR(2) | ANNUAL $ SAVINGS(3) | DISCOUNT FACTOR(4) | DISCOUNTED SAVINGS(5) |
|---|---|---|---|---|---|
| A. ELECT | $ 16.25 | -67. | $ -1089. | 13.86 | $ -15090. |
| B. DIST | $ .00 | 0. | $ 0. | 16.99 | $ 0. |
| C. RESID | $ .00 | 0. | $ 0. | 17.38 | $ 0. |
| D. NAT G | $ 7.28 | 36685. | $ 267067. | 17.14 | $ 4577525. |
| E. COAL | $ .00 | 0. | $ 0. | 13.56 | $ 0. |
| F. LPG | $ .00 | 0. | $ 0. | 15.12 | $ 0. |
| M. DEMAND SAVINGS | | | $ 0. | 13.47 | $ 0. |
| N. TOTAL | | 36618. | $ 265978. | | $ 4562435. |

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-) $ 190000.
(1) DISCOUNT FACTOR (TABLE A) 13.47
(2) DISCOUNTED SAVING/COST (3A X 3A1) $ 2559300.

B. NON RECURRING SAVINGS(+) / COSTS(-)

| ITEM | SAVINGS(+) COST(-) (1) | YR OC (2) | DISCNT FACTR (3) | DISCOUNTED SAVINGS(+)/ COST(-)(4) |
|---|---|---|---|---|
| d. TOTAL | $ 0. | | | 0. |

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4) $ 2559300.

4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE)) $ 455978.

5. SIMPLE PAYBACK PERIOD (1G/4) 2.94 YEARS

6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) $ 7121735.

7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= 5.32
(IF < 1 PROJECT DOES NOT QUALIFY)

## ECO-1A
## STEAM DECENTRALIZATION - OPTION A
## NEW STEAM BOILERS IN BUILDING 2700

| | |
|---|---|
| **Existing.** | Same existing conditions as the Base Case. |
| **Proposed.** | No changes are required to the Base Case as it relates to this ECO option. |
| **Savings.** | No changes. |
| **Construction Cost.** | No changes. |
| **Discussion.** | This option was not evaluated because after further discussion with Fort Monmouth personnel no other year round steam loads other than the cleanroom reheat are required for Building 2700. |

# ECO-1B
# STEAM DECENTRALIZATION - OPTION B
# NEW HOT WATER BOILERS FOR CLEANROOM

**Existing.** Same existing conditions as the Base Case.

**Proposed.** To utilize a hot water boiler in lieu of the steam boiler specified in the Base Case. Existing steam reheat coils in the four units would require replacement along with local piping and controls.

**Proposed Natural Gas Usage and Cost.** The average mmBtu/day of 31.9 for reheat does not need adjustment because no losses are assumed as compared to a steam boiler. The total then became 61.7 mmBtu/day for a total of 22,530 mmBtu/yr. The reheat cost for Building's 2700 and 2705 then becomes $105,900. The total fuel cost related to the steam plant decentralization would be approximately $208,000.

| | Heating (mmBtu/day) | Total (mmBtu/day) | Natural Gas (mcf/yr) | Fuel Cost ($/yr) |
|---|---|---|---|---|
| Reheat | 11,650 | 14,560 | 14,120 | $105,900 |
| New Totals | 22,540 | 28,170 | 27,320 | $208,000 |

Note: All other totals for ECO-1 with the exception of reheat remain the same.

**Proposed Plant Electric Total.** The proposed electric demand and usage totals for ECO-1 Option B. All conditions are the same except that the pumps for this system are now hot water only. The motor size for each is estimated to be 5 HP. The electric cost for ECO-1 Option B is estimated to be $20,100. Refer to Table ECO-1B-P on the following page.

| Season | Demand (kW) | Off Peak (kWh) | On Peak (kWh) | Cost ($) |
|---|---|---|---|---|
| Non-summer | 415 | 145,524 | 55,581 | $17,116 |
| Summer | 76 | 25,298 | 9,062 | $2,941 |
| Totals | 491 | 170,822 | 64,643 | $20,057 |

**Proposed Operating and Maintenance Costs.** No changes from what was predicted for this change in the Base Case.

| | |
|---|---|
| Total Daily Monitoring | $140,000 |
| Equipment Maintenance | $160,000 |

**Construction Cost.** The only changes to the cost estimate are associated with the boiler plant for Building 2700's cleanrooms. The cost for this portion of the option is attached and totals $323,000. The total cost for ECO-1B is $1,372,000. The cost estimate summary totals for Option B are shown below. The detailed estimate follows.

| Change | Material | Labor | SIOH | Design | Total |
|---|---|---|---|---|---|
| 2) Building 2700 Cleanrooms to Dedicated HW Boilers | $143,000 | $146,000 | $16,000 | $18,000 | $323,000 |
| Option B Totals | $547,000 | $682,000 | $69,000 | $74,000 | $1,372,000 |

## BUILDING 2700 ELECTRIC MODEL

| HVAC Item | HVAC Airside Equipment - General Information: Design/Site Designation | Equip. Type | Field Data/Reference/(Location) | Area Served | Cooling Equipment Field Data/Reference/(Location) | | Total Connected Load (kW) | Winter Demand kW/month | Inte Der kW/ |
|---|---|---|---|---|---|---|---|---|---|
| 282 | HWP-1 | Pump | Allis Charmers - Building 2706 | MCA Hot Water | N/A | | 22.4 | 16.8 | |
| 283 | HWP-2 | Pump | Allis Charmers - Building 2706 | MCA Hot Water - Lag | N/A | | 22.4 | 16.8 | |
| 284 | HWP-3 | Pump | Allis Charmers - Building 2706 | MCA Hot Water - Standby | N/A | | 22.4 | 0.0 | |
| 296 | FWP-1 | Pump | Aurora - Building 2700 | Boiler Feedwater | N/A | (SYSTEM SHUTDOWN) | 0.0 | 0.0 | |
| 297 | FWP-2 | Pump | Worthington - Building 2700 | Boiler Feedwater | N/A | (SYSTEM SHUTDOWN) | 0.0 | 0.0 | |
| 298 | FWP-3 | Pump | Ingersol Rand - Building 2700 | Boiler Feedwater | N/A | (SYSTEM SHUTDOWN) | 0.0 | 0.0 | |
| 299 | CP-1 | Pump | Aurora - Building 2700 | Condensate | N/A | (SYSTEM SHUTDOWN) | 0.0 | 0.0 | |
| 300 | CP-2 | Pump | Aurora - Building 2700 | Condensate | N/A | (SYSTEM SHUTDOWN) | 0.0 | 0.0 | |
| 301 | CP-7 | Pump | Aurora - Building 2700 | Condensate | N/A | (SYSTEM SHUTDOWN) | 0.0 | 0.0 | |
| 302 | CP-8 | Pump | Aurora - Building 2700 | Condensate | N/A | (SYSTEM SHUTDOWN) | 0.0 | 0.0 | |
| 303 | CP-1 (New) | Pump | unknown - Building 2706 | Condensate | N/A | (SYSTEM SHUTDOWN) | 0.0 | 0.0 | |
| 320 | - | F.D. Fan | Proposed as New in MR # 43 | Building 2700 Cleanrooms | N/A | | 1.1 | 0.8 | |
| 321 | - | F.D. Fan | Proposed as New in MR # 43 | Building 2700 Cleanrooms | N/A | | 1.1 | 0.8 | |
| 322 | - | Pump | Proposed as New in MR # 43 | Building 2700 Cleanrooms | N/A | | 3.8 | 2.8 | |
| 323 | - | Pump | Proposed as New in MR # 43 | Building 2700 Cleanrooms | N/A | | 3.8 | 2.8 | |
| 324 | - | F.D. Fan | Proposed Building 2704 Boiler Plant | Building 2704 Heating Loads | N/A | | 0.8 | 0.6 | |
| 325 | - | F.D. Fan | Proposed Building 2704 Boiler Plant | Building 2704 Heating Loads | N/A | | 0.8 | 0.6 | |
| 326 | - | Pump | Proposed Building 2704 Boiler Plant | Building 2704 Heating Loads | N/A | | 0.8 | 0.6 | |
| 327 | - | Pump | Proposed Building 2704 Boiler Plant | Building 2704 Heating Loads | N/A | | 0.8 | 0.6 | |
| 328 | - | Pump | Proposed Building 2704 Boiler Plant | Building 2704 Lighting | N/A | | 2.6 | 2.0 | |
| 329 | - | F.D. Fan | Proposed Building 2705 Boiler Plant | Building 2705 Heat/Reheat | N/A | | 1.1 | 0.8 | |
| 330 | - | F.D. Fan | Proposed Building 2705 Boiler Plant | Building 2705 Heat/Reheat | N/A | | 1.1 | 0.8 | |
| 331 | - | Pump | Proposed Building 2705 Boiler Plant | Building 2705 Heat/Reheat | N/A | | 5.6 | 4.2 | |
| 332 | - | Pump | Proposed Building 2705 Boiler Plant | Building 2705 Heat/Reheat | N/A | | 5.6 | 4.2 | |
| 333 | - | Lighting | Proposed Building 2705 Boiler Plant | Building 2704 Lighting | N/A | | 2.6 | 2.0 | |
| | | | | TOTALS: | | | 96 | 55 | |



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## FT. MONMOUTH, DEPARTMENT OF THE ARMY

## BUILDING 2700 ELECTRIC MODEL - PROPOSED DECENTRALIZED HEATING SYSTEM TOTALS (Option B)

### TABLE ECO-1P-B

| nformation | Cooling Equipment | Total | Winter | Intermed. | Summer | Winter Billing Months | | | | Intermediate Billing Months | | | | Summer Billing Months | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | |
| Area Served | Field Data/Reference/(Location) | Connected Load (kW) | Demand kW/month | Demand kW/month | Demand kW/month | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | Demand kW/Yr |
| MCA Hot Water | N/A | 22.4 | 16.8 | 13.4 | 0.0 | 12.0 | 8,064 | 8 | 3,584 | 9 | 6,048 | 6 | 2,688 | 0 | 0 | 0 | 0 | [illegible] |
| MCA Hot Water - Lag | N/A | 22.4 | 16.8 | 13.4 | 0.0 | 8.0 | 5,376 | 4 | 1,792 | 6 | 4,032 | 3 | 1,344 | 0 | 0 | 0 | 0 | [illegible] |
| MCA Hot Water - Standby | N/A | 22.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Boiler Feedwater | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Boiler Feedwater | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Boiler Feedwater | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Condensate | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Condensate | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Condensate | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Condensate | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Condensate | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Building 2700 Cleanrooms | N/A | 1.1 | 0.8 | 0.8 | 0.0 | 12.0 | 396 | 8 | 176 | 12 | 396 | 8 | 176 | 12 | 396 | 8 | 176 | |
| Building 2700 Cleanrooms | N/A | 1.1 | 0.8 | 0.8 | 0.0 | 3.0 | 99 | 0 | 0 | 3 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Building 2700 Cleanrooms | N/A | 3.8 | 2.8 | 2.8 | 2.8 | 12.0 | 1,354 | 8 | 602 | 12 | 1,354 | 8 | 602 | 12 | 1,354 | 8 | 602 | [illegible] |
| Building 2700 Cleanrooms | N/A | 3.8 | 2.8 | 2.8 | 2.8 | 3.0 | 338 | 0 | 0 | 3 | 338 | 0 | 0 | 3 | 338 | 0 | 0 | [illegible] |
| Building 2704 Heating Loads | N/A | 0.8 | 0.6 | 0.6 | 0.0 | 12.0 | 288 | 8 | 128 | 8 | 192 | 4 | 64 | 0 | 0 | 0 | 0 | |
| Building 2704 Heating Loads | N/A | 0.8 | 0.6 | 0.6 | 0.0 | 3.0 | 72 | 0 | 0 | 3 | 72 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Building 2704 Heating Loads | N/A | 0.8 | 0.6 | 0.6 | 0.6 | 12.0 | 270 | 8 | 120 | 8 | 180 | 4 | 60 | 0 | 0 | 0 | 0 | |
| Building 2704 Heating Loads | N/A | 0.8 | 0.6 | 0.6 | 0.6 | 3.0 | 68 | 0 | 0 | 3 | 68 | 0 | 0 | 3 | 68 | 0 | 0 | |
| Building 2704 Lighting | N/A | 2.6 | 2.0 | 2.0 | 2.0 | 8.0 | 624 | 4 | 208 | 8 | 624 | 4 | 208 | 8 | 624 | 4 | 208 | |
| Building 2705 Heat/Reheat | N/A | 1.1 | 0.8 | 0.8 | 0.0 | 12.0 | 396 | 8 | 176 | 12 | 396 | 8 | 176 | 12 | 396 | 8 | 176 | |
| Building 2705 Heat/Reheat | N/A | 1.1 | 0.8 | 0.8 | 0.0 | 3.0 | 99 | 0 | 0 | 3 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Building 2705 Heat/Reheat | N/A | 5.6 | 4.2 | 4.2 | 4.2 | 12.0 | 2,016 | 8 | 896 | 12 | 2,016 | 8 | 896 | 12 | 2,016 | 8 | 896 | [illegible] |
| Building 2705 Heat/Reheat | N/A | 5.6 | 4.2 | 4.2 | 4.2 | 3.0 | 504 | 0 | 0 | 3 | 504 | 0 | 0 | 3 | 504 | 0 | 0 | [illegible] |
| Building 2704 Lighting | N/A | 2.6 | 2.0 | 2.0 | 2.0 | 8.0 | 624 | 4 | 208 | 8 | 624 | 4 | 208 | 8 | 624 | 4 | 208 | |
| TOTALS: | | 96 | 55 | 48 | 17 | 118 | 19,964 | 64 | 7,682 | 105 | 16,418 | 53 | 6,214 | 65 | 5,696 | 36 | 2,058 | 4[illegible] |

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## ꓤTMENT OF THE ARMY

## :ENTRALIZED HEATING SYSTEM TOTALS (Option B)

**CO-1P-B**

| illing Months | | | Intermediate Billing Months | | | | Summer Billing Months | | | | Non-Summer | | | | Summer | | | | Annual | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | On-Peak | | Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | | | | | | | | | | |
| | hrs/ | | hrs/ | | hrs/ | | hrs/ | | hrs/ | | Demand | Off-Peak | On-Peak | Cost | Demand | Off-Peak | On-Peak | Cost | Cost | |
| 'o | day | kWh/Mo | day | kWh/Mo | day | kWh/Mo | day | kWh/Mo | day | kWh/Mo | kW/Yr. | KWH/Yr. | KWH/Yr. | $ | kW/Yr. | KWH/Yr. | KWH/Yr. | $ | $ | No. |
| 4 | 8 | 3,584 | 9 | 6,048 | 6 | 2,688 | 0 | 0 | 0 | 0 | 121 | 56,448 | 25,088 | $6,345 | 0 | 0 | 0 | $0 | $6,345 | 282 |
| 6 | 4 | 1,792 | 6 | 4,032 | 3 | 1,344 | 0 | 0 | 0 | 0 | 121 | 37,632 | 12,544 | $4,262 | 0 | 0 | 0 | $0 | $4,262 | 283 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 284 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 296 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 297 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 298 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 299 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 300 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 301 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 302 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 303 |
| 6 | 8 | 176 | 12 | 396 | 8 | 176 | 12 | 396 | 8 | 176 | 7 | 3,168 | 1,408 | $355 | 0 | 1,584 | 704 | $150 | $505 | 320 |
| 9 | 0 | 0 | 3 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 792 | 0 | $104 | 0 | 0 | 0 | $0 | $104 | 321 |
| 4 | 8 | 602 | 12 | 1,354 | 8 | 602 | 12 | 1,354 | 8 | 602 | 23 | 10,829 | 4,813 | $1,212 | 11 | 5,414 | 2,406 | $617 | $1,829 | 322 |
| 8 | 0 | 0 | 3 | 338 | 0 | 0 | 3 | 338 | 0 | 0 | 23 | 2,707 | 0 | $357 | 11 | 1,354 | 0 | $189 | $545 | 323 |
| 8 | 8 | 128 | 8 | 192 | 4 | 64 | 0 | 0 | 0 | 0 | 5 | 1,920 | 768 | $215 | 0 | 0 | 0 | $0 | $215 | 324 |
| 2 | 0 | 0 | 3 | 72 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 576 | 0 | $76 | 0 | 0 | 0 | $0 | $76 | 325 |
| 0 | 8 | 120 | 8 | 180 | 4 | 60 | 0 | .0 | 0 | 0 | 5 | 1,800 | 720 | $202 | 2 | 0 | 0 | $21 | $223 | 326 |
| 8 | 0 | 0 | 3 | 68 | 0 | 0 | 3 | 68 | 0 | 0 | 5 | 540 | 0 | $71 | 2 | 270 | 0 | $38 | $109 | 327 |
| 4 | 4 | 208 | 8 | 624 | 4 | 208 | 8 | 624 | 4 | 208 | 16 | 4,992 | 1,664 | $562 | 8 | 2,496 | 832 | $288 | $850 | 328 |
| 6 | 8 | 176 | 12 | 396 | 8 | 176 | 12 | 396 | 8 | 176 | 7 | 3,168 | 1,408 | $355 | 0 | 1,584 | 704 | $150 | $505 | 329 |
| 9 | 0 | 0 | 3 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 792 | 0 | $104 | 0 | 0 | 0 | $0 | $104 | 330 |
| 6 | 8 | 896 | 12 | 2,016 | 8 | 896 | 12 | 2,016 | 8 | 896 | 34 | 16,128 | 7,168 | $1,805 | 17 | 8,064 | 3,584 | $919 | $2,724 | 331 |
| 4 | 0 | 0 | 3 | 504 | 0 | 0 | 3 | 504 | 0 | 0 | 34 | 4,032 | 0 | $531 | 17 | 2,016 | 0 | $281 | $812 | 332 |
| 4 | 4 | 208 | 8 | 624 | 4 | 208 | 8 | 624 | 4 | 208 | 16 | 4,992 | 1,664 | $562 | 8 | 2,496 | 832 | $288 | $850 | 333 |
| 4 | 64 | 7,682 | 105 | 16,418 | 53 | 6,214 | 65 | 5,696 | 36 | 2,058 | 415 | 145,524 | 55,581 | $17,116 | 76 | 25,278 | 9,062 | $2,941 | $20,057 | |

3

# FORT MONMOUTH
# PROJECT COST ESTIMATE

**BUILDING 2700 DECENTRALIZATION (EC0-1B - CH #2) - CLEANROOM STEAM LOADS TO NEW HOT WATER BOILERS (MR #43)**

| NO. | DESCRIPTION | QTY | UNIT | MATERIAL $/UNIT | MATERIAL COST | LABOR $/UNIT | LABOR COST | TOTAL BARE COST | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Demolition/Removal of Abandoned Equipment | 1 | Lot | $3,000.00 | $3,000 | $5,000.00 | $5,000 | $8,000 | |
| 2 | Install (2) Large Fire Doors | 2 | Each | $2,000.00 | $4,000 | $500.00 | $1,000 | $5,000 | |
| 3 | Seal Penetrations | 1 | Lot | $1,000.00 | $1,000 | $2,000.00 | $2,000 | $3,000 | |
| 4 | Install (2) Duct Mounted Fire Dampers | 2 | Each | $500.00 | $1,000 | $1,000.00 | $2,000 | $3,000 | |
| 5 | Install (2) 25 HP Hot Water Boilers | 2 | Each | $15,000.00 | $30,000 | $7,000.00 | $14,000 | $44,000 | Including Foundation Work |
| 6 | Install Primary Hot Water Pumps | 1 | Lot | $1,250.00 | $1,250 | $1,000.00 | $1,000 | $2,250 | Including Foundation Work |
| 7 | Install Chemical Feed System | 1 | Lot | $1,500.00 | $1,500 | $1,000.00 | $1,000 | $2,500 | |
| 8 | Electrical Work for Pumps, Boiler Fans, etc. | 1 | Lot | $3,000.00 | $3,000 | $6,000.00 | $6,000 | $9,000 | |
| 9 | Hot Water Piping to 4TH Floor Cleanrooms | 2,000 | Each | $8.00 | $16,000 | $8.00 | $16,000 | $32,000 | Including Insulation |
| 10 | New HW AHU Coils | 3 | Each | $5,000.00 | $15,000 | $2,500.00 | $7,500 | $22,500 | |
| 11 | Hot Water Piping to 4TH Floor Cleanrooms | 1,000 | Each | $8.00 | $8,000 | $8.00 | $8,000 | $16,000 | Including Insulation |
| 12 | New HW AHU Coils | 1 | Each | $2,000.00 | $2,000 | $1,500.00 | $1,500 | $3,500 | |
| 13 | Miscellaneous Hot Water Valves, Strainers, etc. | 1 | Lot | $10,000.00 | $10,000 | $4,000.00 | $4,000 | $14,000 | |
| 14 | Make-up Water Feed including Valving | 500 | Each | $7.00 | $3,500 | $7.00 | $3,500 | $7,000 | Including Insulation |
| 15 | Natural Gas Piping From First Floor | 1,000 | Each | $5.00 | $5,000 | $5.00 | $5,000 | $10,000 | |
| 16 | Miscellaneous Natural Gas Valves, Strainers, et | 1 | Lot | $3,000.00 | $3,000 | $500.00 | $500 | $3,500 | |
| 17 | Provide Vent Stack(s) Thru Roof | 2 | Each | $3,000.00 | $6,000 | $2,000.00 | $4,000 | $10,000 | |
| 18 | | | | | $0 | | $0 | $0 | |
| 19 | | | | | $0 | | $0 | $0 | |
| 20 | | | | | $0 | | $0 | $0 | |
| 21 | | | | | $0 | | $0 | $0 | |
| 22 | | | | | $0 | | $0 | $0 | |
| 23 | | | | | $0 | | $0 | $0 | |
| 24 | | | | | $0 | | $0 | $0 | |
| 25 | | | | | $0 | | $0 | $0 | |
| 26 | | | | | $0 | | $0 | $0 | |
| 27 | | | | | $0 | | $0 | $0 | |
| | SUBTOTAL | | | | | | | $195,300 | |
| | OVERHEAD AND PROFIT | | | | $11,300 | | $44,700 | $56,000 | |
| | CITY COST INDEX MULTIPLIER | | | | | | | | |
| | DIFFICULTY FACTOR | | | | | | | | |
| | CONTINGENCY (15 %) | | | | $18,700 | | $19,000 | $37,700 | |
| | SIOH(5.5%) & DESIGN FEE(6%) | | | 16,000 | | 18,000 | | $34,000 | |
| | BASE TOTAL COST | | | | $143,000 | | $146,000 | $323,000 | |

G:\4130.05\SS\ECOS\ECO1B-#2.WK4

27-Jun-96

**Fuel Savings.**
(Natural Gas) The total yearly fuel savings associated with Option B of ECO-1 is $273,000 or $6,000 than the Base Case (with steam boilers).

| Savings | Heating (mmBtu/day) | Fuel (mmBtu/day) | Natural Gas (mcf/yr) | Fuel Cost ($/yr) |
|---|---|---|---|---|
| Totals | 27,670 | 37,525 | 36,400 | $273,000 |
| Percent Reduction | 55.1% | 57.1% | 57.1% | 57.1% |

**Electric Savings.** The total yearly electric savings (cost) when compared to ECO-1 (Base Case) is (-$2,989).

| Season | Demand (kW) | Off-Peak (kWh/yr) | On-Peak (kWh/yr) | Energy (mmBtu) | Cost ($/yr) |
|---|---|---|---|---|---|
| Non-Summer | (67) | (40,212) | (9,373) | (169) | ($4,303) |
| Summer | 38 | 8,562 | 5,978 | 50 | $1,314 |
| Totals | (29) | (31,650) | (3,395) | (119) | ($2,989) |
| Percent Reduction | -6.3% | -22.7% | -5.5% | -15.8% | -17.5% |

**Operation/Maintenance**
**Savings.** Same as predicted in the Base Case or $190,000.

**Discussion.** Payback = 3.0 years

SIR = 5.25

The payback associated with this ECO is 3.0 years. The difference in construction costs between the hot water boilers and the steam boilers is relatively small when considering the entire decentralization total. The elimination of steam can in some cases improve the controllability of reheat systems. If considered prudent the changeout to hot water for the reheat of the cleanroom units is recommended.

LIFE CYCLE COST ANALYSIS SUMMARY — STUDY: MON1

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) — LCCID FY95 (92)

INSTALLATION & LOCATION: REGION NOS. 2 CENSUS: 1

PROJECT NO. & TITLE:

FISCAL YEAR DISCRETE PORTION NAME: ECO#1B

ANALYSIS DATE: 07-03-96 ECONOMIC LIFE 20 YEARS PREPARED BY:

1. INVESTMENT

| | | | |
|---|---|---|---|
| A. CONSTRUCTION COST | $ 1229000. | | |
| B. SIOH | $ 69000. | | |
| C. DESIGN COST | $ 74000. | | |
| D. TOTAL COST (1A+1B+1C) | $ 1372000. | | |
| E. SALVAGE VALUE OF EXISTING EQUIPMENT | | $ 0. | |
| F. PUBLIC UTILITY COMPANY REBATE | | $ 0. | |
| G. TOTAL INVESTMENT (1D - 1E - 1F) | | | $ 1372000. |

2. ENERGY SAVINGS (+) / COST (-)

DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1995

| FUEL | UNIT COST $/MBTU(1) | SAVINGS MBTU/YR(2) | ANNUAL $ SAVINGS(3) | DISCOUNT FACTOR(4) | DISCOUNTED SAVINGS(5) |
|---|---|---|---|---|---|
| A. ELECT | $ 25.12 | -119. | $ -2989. | 13.86 | $ -41431. |
| B. DIST | $ .00 | 0. | $ 0. | 16.99 | $ 0. |
| C. RESID | $ .00 | 0. | $ 0. | 17.38 | $ 0. |
| D. NAT G | $ 7.28 | 37525. | $ 273182. | 17.14 | $ 4682340. |
| E. COAL | $ .00 | 0. | $ 0. | 13.56 | $ 0. |
| F. LPG | $ .00 | 0. | $ 0. | 15.12 | $ 0. |
| M. DEMAND SAVINGS | | | $ 0. | 13.47 | $ 0. |
| N. TOTAL | | 37406. | $ 270193. | | $ 4640908. |

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-) $ 190000.
 (1) DISCOUNT FACTOR (TABLE A) 13.47
 (2) DISCOUNTED SAVING/COST (3A X 3A1) $ 2559300.

B. NON RECURRING SAVINGS(+) / COSTS(-)

| ITEM | SAVINGS(+) COST(-) (1) | YR OC (2) | DISCNT FACTR (3) | DISCOUNTED SAVINGS(+)/ COST(-)(4) |
|---|---|---|---|---|
| d. TOTAL | $ 0. | | | 0. |

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4) $ 2559300.

4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE)) $ 460193.

5. SIMPLE PAYBACK PERIOD (1G/4) 2.98 YEARS

6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) $ 7200208.

7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= 5.25
 (IF < 1 PROJECT DOES NOT QUALIFY)

## ECO-1C
## STEAM DECENTRALIZATION - OPTION C
## OPERATE CLEANROOMS WITH MCA HOT WATER

**Existing.** Same existing conditions as the Base Case.

**Proposed.** No changes proposed.

**Savings.** No changes.

**Construction Cost.** No changes.

**Discussion.** This ECO was not analyzed further because the small loads associated with the cleanroom reheat would not be sufficient to allow the new boilers in Building 2700 to operate properly during the cooling season. A firing turndown ratio ranging between 10 to 1 and 20 to 1 would be required for meeting these reduced summer time loads. Also, the cost estimate to route the dedicated piping from Building 2706 to the cleanroom units on the fourth floor would be comparable to the installation of the new boilers on the fourth floor. Note: The dedicated line would require it's own pump arrangement and the cleanroom units would have to be converted to hot water also (ie: coils, piping and controls).

## ECO-1D
## STEAM DECENTRALIZATION - OPTION D
## ELECTRIC HOT WATER GENERATOR

**Existing.** Same existing conditions as the Base Case.

**Proposed.** No changes proposed.

**Savings.** No changes.

**Construction Cost.** No changes.

**Discussion.** Since the construction costs between the proposed gas unit versus the electrical unit would be comparable and the energy costs using electric would be higher, this ECO needs no further investigation. Note: The gas needed in the proposed base case is located in the near vicinity of the existing domestic hot water generators thus minimizing the associated impact of the gas piping.

## ECO-1E
## STEAM DECENTRALIZATION - OPTION E
## DECENTRALIZED DOMESTIC HOT WATER SYSTEM

**Existing.** Same existing conditions as the Base Case.

**Proposed.** To install approximately forty (40) light duty electric water heaters at point of use locations such as bathrooms, etc. This change will reduce the losses seen in the central distribution system by approximately 20% and has the benefit of reduced energy because of the elimination of inefficiency in the generator itself. The average size required is a fifty (50) gallon storage capacity with a 4000 watt electric heating element. This new concept would eliminate the need for the large central DHW distribution system.

**Proposed Natural Gas Usage and Cost.** The average mmBtu/day of 5.6 for DHW would be eliminated from the gas billing. This equates to a reduction in yearly fuel consumption of 2,475 mcf. The total cost of firing natural gas for the decentralized system now becomes $192,490/yr. The totals for the other areas are the same and the summary becomes.

| Savings | Heating (mmBtu/day) | Fuel (mmBtu/day) | Natural Gas (mcf/yr) | Fuel Cost ($/yr) |
|---|---|---|---|---|
| DHW Usage Totals | 21,170 | 26,460 | 25,665 | $192,490 |

**Proposed Electric Total.** The proposed electric demand and usage totals associated with this option will rise. The proposed heating load is reduced by about 20% to 4.5 mmBtu. The cost for the electric including the heating of the decentralized water heaters is $36,729.

| Season | Demand (kW) | Off-Peak (kWh/yr) | On-Peak (kWh/yr) | Energy (mmBtu/yr) | Cost ($/yr) |
|---|---|---|---|---|---|
| Non-Summer | 458 | 254,880 | 117,392 | 1,271 | $28,216 |
| Summer | 90 | 77,460 | 39,136 | 398 | $8,513 |
| Totals | 548 | 332,340 | 156,528 | 1,669 | $36,729 |

Refer to Table ECO-1E-P on the following page.

| HVAC Item | HVAC Airside Equipment - General Information: Design/Site Designation | Equip. Type | Field Data/Reference/(Location) | Area Served | Cooling Equipment Field Data/Reference/(Location) | Total Connected Load (kW) | Winter Demand kW/month | Interm Dem: kW/m. |
|---|---|---|---|---|---|---|---|---|
| 282 | HWP-1 | Pump | Allis Chamers - Building 2706 | MCA Hot Water | N/A | 22.4 | 16.8 | |
| 283 | HWP-2 | Pump | Allis Chamers - Building 2706 | MCA Hot Water - Lag | N/A | 22.4 | 16.8 | |
| 284 | HWP-3 | Pump | Allis Chamers - Building 2706 | MCA Hot Water - Standby | N/A | 22.4 | 0.0 | |
| 296 | FWP-1 | Pump | Aurora - Building 2700 | Boiler Feedwater | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | |
| 297 | FWP-2 | Pump | Worthington - Building 2700 | Boiler Feedwater | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | |
| 298 | FWP-3 | Pump | Ingersol Rand - Building 2700 | Boiler Feedwater | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | |
| 299 | CP-1 | Pump | Aurora - Building 2700 | Condensate | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | |
| 300 | CP-2 | Pump | Aurora - Building 2700 | Condensate | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | |
| 301 | CP-7 | Pump | Aurora - Building 2700 | Condensate | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | |
| 302 | CP-8 | Pump | Aurora - Building 2700 | Condensate | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | |
| 303 | CP-1 (New) | Pump | unknown - Building 2706 | Condensate | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | |
| 320 | - | F.D. Fan | Proposed as New in MR # 43 | Building 2700 Cleanrooms | N/A | 1.1 | 0.8 | |
| 321 | - | F.D. Fan | Proposed as New in MR # 43 | Building 2700 Cleanrooms | N/A | 1.1 | 0.8 | |
| 322 | - | Pump | Proposed as New in MR # 43 | Building 2700 Cleanrooms | N/A | 0.8 | 0.6 | |
| 323 | - | Pump | Proposed as New in MR # 43 | Building 2700 Cleanrooms | N/A | 0.8 | 0.6 | |
| 324 | - | F.D. Fan | Proposed Building 2704 Boiler Plant | Building 2704 Heating Loads | N/A | 0.8 | 0.6 | |
| 325 | - | F.D. Fan | Proposed Building 2704 Boiler Plant | Building 2704 Heating Loads | N/A | 0.8 | 0.6 | |
| 326 | - | Pump | Proposed Building 2704 Boiler Plant | Building 2704 Heating Loads | N/A | 0.8 | 0.6 | |
| 327 | - | Pump | Proposed Building 2704 Boiler Plant | Building 2704 Heating Loads | N/A | 0.8 | 0.6 | |
| 328 | - | Pump | Proposed Building 2704 Boiler Plant | Building 2704 Lighting | N/A | 2.6 | 2.0 | |
| 329 | - | F.D. Fan | Proposed Building 2705 Boiler Plant | Building 2705 Heat/Reheat | N/A | 1.1 | 0.8 | |
| 330 | - | F.D. Fan | Proposed Building 2705 Boiler Plant | Building 2705 Heat/Reheat | N/A | 1.1 | 0.8 | |
| 331 | - | Pump | Proposed Building 2705 Boiler Plant | Building 2705 Heat/Reheat | N/A | 5.6 | 4.2 | |
| 332 | - | Pump | Proposed Building 2705 Boiler Plant | Building 2705 Heat/Reheat | N/A | 5.6 | 4.2 | |
| 333 | - | Lighting | Proposed Building 2705 Boiler Plant | Building 2704 Lighting | N/A | 2.6 | 2.0 | |
| 334 | - | DHW Heat | Proposed Building 2700 Decentralized DH | Building 2700 DHW | N/A | 160.0 | 8.0 | |
| | | | | TOTALS | | 253 | 61 | |



1

# FT. MONMOUTH, DEPARTMENT OF THE ARMY
## BUILDING 2700 ELECTRIC MODEL - PROPOSED DECENTRALIZED HEATING SYSTEM TOTALS (Option E)

### TABLE ECO-1E-P

| | | | | | | Winter Billing Months | | | | Intermediate Billing Months | | | | Summer Billing Months | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | | Nor |
| Area Served | Cooling Equipment Field Data/Reference/(Location) | Total Connected Load (kW) | Winter Demand kW/month | Intermed. Demand kW/month | Summer Demand kW/month | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | Demand kW/Yr. | Off-Pea KWH/Yr |
| Hot Water | N/A | 22.4 | 16.8 | 13.4 | 0.0 | 12 | 8,064 | 8 | 3,584 | 9 | 6,048 | 6 | 2,688 | 0 | 0 | 0 | 0 | 121 | 56,4 |
| Hot Water - Lag | N/A | 22.4 | 16.8 | 13.4 | 0.0 | 8 | 5,376 | 4 | 1,792 | 6 | 4,032 | 3 | 1,344 | 0 | 0 | 0 | 0 | 121 | 37,6 |
| Hot Water - Standby | N/A | 22.4 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| r Feedwater | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| r Feedwater | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| r Feedwater | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| iensate | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| iensate | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| iensate | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| iensate | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| iensate | N/A (SYSTEM SHUTDOWN) | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| ing 2700 Cleanrooms | N/A | 1.1 | 0.8 | 0.8 | 0.0 | 12 | 396 | 8 | 176 | 12 | 396 | 8 | 176 | 12 | 396 | 8 | 176 | 7 | 3,1 |
| ing 2700 Cleanrooms | N/A | 1.1 | 0.8 | 0.8 | 0.0 | 3 | 99 | 0 | 0 | 3 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 7 |
| ing 2700 Cleanrooms | N/A | 0.8 | 0.6 | 0.6 | 0.6 | 12 | 270 | 8 | 120 | 12 | 270 | 8 | 120 | 12 | 270 | 8 | 120 | 5 | 2,1 |
| ing 2700 Cleanrooms | N/A | 0.8 | 0.6 | 0.6 | 0.6 | 3 | 68 | 0 | 0 | 3 | 68 | 0 | 0 | 3 | 68 | 0 | 0 | 5 | 5 |
| ing 2704 Heating Loads | N/A | 0.8 | 0.6 | 0.6 | 0.0 | 12 | 288 | 8 | 128 | 8 | 192 | 4 | 64 | 0 | 0 | 0 | 0 | 5 | 1,9 |
| ing 2704 Heating Loads | N/A | 0.8 | 0.6 | 0.6 | 0.0 | 3 | 72 | 0 | 0 | 3 | 72 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 |
| ing 2704 Heating Loads | N/A | 0.8 | 0.6 | 0.6 | 0.6 | 12 | 270 | 8 | 120 | 8 | 180 | 4 | 60 | 0 | 0 | 0 | 0 | 5 | 1,8 |
| ing 2704 Heating Loads | N/A | 0.8 | 0.6 | 0.6 | 0.6 | 3 | 68 | 0 | 0 | 3 | 68 | 0 | 0 | 3 | 68 | 0 | 0 | 5 | 5 |
| ing 2704 Lighting | N/A | 2.6 | 2.0 | 2.0 | 2.0 | 8 | 624 | 4 | 208 | 8 | 624 | 4 | 208 | 8 | 624 | 4 | 208 | 16 | 4,9 |
| ing 2705 Heat/Reheat | N/A | 1.1 | 0.8 | 0.8 | 0.0 | 12 | 396 | 8 | 176 | 12 | 396 | 8 | 176 | 12 | 396 | 8 | 176 | 7 | 3,1 |
| ing 2705 Heat/Reheat | N/A | 1.1 | 0.8 | 0.8 | 0.0 | 3 | 99 | 0 | 0 | 3 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 7 |
| ing 2705 Heat/Reheat | N/A | 5.6 | 4.2 | 4.2 | 4.2 | 12 | 2,016 | 8 | 896 | 12 | 2,016 | 8 | 896 | 12 | 2,016 | 8 | 896 | 34 | 16,1 |
| ing 2705 Heat/Reheat | N/A | 5.6 | 4.2 | 4.2 | 4.2 | 3 | 504 | 0 | 0 | 3 | 504 | 0 | 0 | 3 | 504 | 0 | 0 | 34 | 4,0 |
| ing 2704 Lighting | N/A | 2.6 | 2.0 | 2.0 | 2.0 | 8 | 624 | 4 | 208 | 8 | 624 | 4 | 208 | 8 | 624 | 4 | 208 | 16 | 4,9 |
| ing 2700 DHW | N/A | 160.0 | 8.0 | 8.0 | 8.0 | 3 | 14,400 | 3 | 8,000 | 3 | 14,400 | 3 | 8,000 | 3 | 14,400 | 3 | 8,000 | 64 | 115,2 |
| TOTALS: | | 253 | 61 | 54 | 23 | 129 | 33,633 | 71 | 15,408 | 116 | 30,087 | 60 | 13,940 | 76 | 19,365 | 43 | 9,784 | 458 | 254,8 |

2

## THE ARMY
## ) HEATING SYSTEM TOTALS (Option E)

| ntermediate Billing Months | | | | Summer Billing Months | | | | Non-Summer | | | | Summer | | | | Annual | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | | | | | | | | | | |
| rs/ ay | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | Demand kW/Yr. | Off-Peak KWH/Yr. | On-Peak KWH/Yr. | Cost $ | Demand kW/Yr. | Off-Peak KWH/Yr. | On-Peak KWH/Yr | Cost $ | Cost $ | No. |
| 9 | 6,048 | 6 | 2,688 | 0 | 0 | 0 | 0 | 121 | 56,448 | 25,088 | $6,345 | 0 | 0 | 0 | $0 | $6,345 | 282 |
| 6 | 4,032 | 3 | 1,344 | 0 | 0 | 0 | 0 | 121 | 37,632 | 12,544 | $4,262 | 0 | 0 | 0 | $0 | $4,262 | 283 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 284 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 296 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 297 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 298 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 299 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 300 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 301 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 302 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | 0 | $0 | $0 | 303 |
| 12 | 396 | 8 | 176 | 12 | 396 | 8 | 176 | 7 | 3,168 | 1,408 | $355 | 0 | 1,584 | 704 | $150 | $505 | 320 |
| 3 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 792 | 0 | $104 | 0 | 0 | 0 | $0 | $104 | 321 |
| 12 | 270 | 8 | 120 | 12 | 270 | 8 | 120 | 5 | 2,160 | 960 | $242 | 2 | 1,080 | 480 | $123 | $365 | 322 |
| 3 | 68 | 0 | 0 | 3 | 68 | 0 | 0 | 5 | 540 | 0 | $71 | 2 | 270 | 0 | $38 | $109 | 323 |
| 8 | 192 | 4 | 64 | 0 | 0 | 0 | 0 | 5 | 1,920 | 768 | $215 | 0 | 0 | 0 | $0 | $215 | 324 |
| 3 | 72 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 576 | 0 | $76 | 0 | 0 | 0 | $0 | $76 | 325 |
| 8 | 180 | 4 | 60 | 0 | 0 | 0 | 0 | 5 | 1,800 | 720 | $202 | 2 | 0 | 0 | $21 | $223 | 326 |
| 3 | 68 | 0 | 0 | 3 | 68 | 0 | 0 | 5 | 540 | 0 | $71 | 2 | 270 | 0 | $38 | $109 | 327 |
| 8 | 624 | 4 | 208 | 8 | 624 | 4 | 208 | 16 | 4,992 | 1,664 | $562 | 8 | 2,496 | 832 | $288 | $850 | 328 |
| 12 | 396 | 8 | 176 | 12 | 396 | 8 | 176 | 7 | 3,168 | 1,408 | $355 | 0 | 1,584 | 704 | $150 | $505 | 329 |
| 3 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 792 | 0 | $104 | 0 | 0 | 0 | $0 | $104 | 330 |
| 12 | 2,016 | 8 | 896 | 12 | 2,016 | 8 | 896 | 34 | 16,128 | 7,168 | $1,805 | 17 | 8,064 | 3,584 | $919 | $2,724 | 331 |
| 3 | 504 | 0 | 0 | 3 | 504 | 0 | 0 | 34 | 4,032 | 0 | $531 | 17 | 2,016 | 0 | $281 | $812 | 332 |
| 8 | 624 | 4 | 208 | 8 | 624 | 4 | 208 | 16 | 4,992 | 1,664 | $562 | 8 | 2 496 | 832 | $288 | $850 | 333 |
| 3 | 14 400 | 3 | 8,000 | 3 | 14,400 | 3 | 8,000 | 64 | 115,200 | 64 000 | $12,355 | 32 | 57 600 | 32 000 | $6,217 | $18,572 | 334 |
| 116 | 30,087 | 60 | 13,940 | 76 | 19,365 | 43 | 9,784 | 458 | 254,880 | 117,392 | $28,216 | 90 | 77,460 | 39,136 | $8,513 | $36,729 | |

3

**Proposed Operating and Maintenance Costs.** An increase in maintenance costs of $500 per individual DHW heater system for a total increase of $20,000 above the Base Case proposal.

| | |
|---|---|
| Total Daily Monitoring | $140,000 |
| Equipment Maintenance | $180,000 |
| Total | $320,000 |

**Construction Cost.** The only changes to the cost estimate are associated with the installation of 40 local electric hot water heaters in Building 2700. The cost for this portion of the option is attached and total $97,000. The total cost for ECO-1E is $1,382,000. The cost estimate summary totals for Option E are shown below.

| Change | Material | Labor | SIOH | Design | Total |
|---|---|---|---|---|---|
| 3) Decentralize Domestic Hot Water System | $30,000 | $57,000 | $5,000 | $5,000 | $97,000 |
| New Totals | $536,000 | $702,000 | $69,000 | $75,000 | $1,382,000 |

Note: All other totals for ECO-1 with the exception of DHW remain the same.

## FORT MONMOUTH
## PROJECT COST ESTIMATE

***BUILDING 2700 DECENTRALIZATION (EC0-1E - CH #3) - DECENTRALIZE DOMESTIC HOT WATER SYSTEM***

| NO. | DESCRIPTION | QTY | UNIT | MATERIAL | | LABOR | | TOTAL BARE COST | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | $/UNIT | COST | $/UNIT | COST | | |
| 1 | Install a 50 Gallon Storage Tank w/4 kW Coil | 40 | Each | $250.00 | $10,000 | $200.00 | $8,000 | $18,000 | |
| 2 | Rework Local Hot & Cold Piping | 40 | Each | $200.00 | $8,000 | $300.00 | $12,000 | $20,000 | |
| 3 | Provide Electrical Power, Wiring, etc. | 40 | Each | $100.00 | $4,000 | $200.00 | $8,000 | $12,000 | |
| 4 | Provide Drilling, Patching, etc. for Retrofit | 40 | Each | $50.00 | $2,000 | $100.00 | $4,000 | $6,000 | |
| 5 | | | | | $0 | | $0 | $0 | |
| 6 | | | | | $0 | | $0 | $0 | |
| 7 | | | | | $0 | | $0 | $0 | |
| 8 | | | | | $0 | | $0 | $0 | |
| 9 | | | | | $0 | | $0 | $0 | |
| 10 | | | | | $0 | | $0 | $0 | |
| 11 | | | | | $0 | | $0 | $0 | |
| 12 | | | | | $0 | | $0 | $0 | |
| 13 | | | | | $0 | | $0 | $0 | |
| 14 | | | | | $0 | | $0 | $0 | |
| 15 | | | | | $0 | | $0 | $0 | |
| 16 | | | | | $0 | | $0 | $0 | |
| 17 | | | | | $0 | | $0 | $0 | |
| 18 | | | | | $0 | | $0 | $0 | |
| 19 | | | | | $0 | | $0 | $0 | |
| 20 | | | | | $0 | | $0 | $0 | |
| 21 | | | | | $0 | | $0 | $0 | |
| 22 | | | | | $0 | | $0 | $0 | |
| 23 | | | | | $0 | | $0 | $0 | |
| 24 | | | | | $0 | | $0 | $0 | |
| 25 | | | | | $0 | | $0 | $0 | |
| 26 | | | | | $0 | | $0 | $0 | |
| 27 | | | | | $0 | | $0 | $0 | |
| | SUBTOTAL | | | | | | | $56,000 | |
| | OVERHEAD AND PROFIT | | | | $2,400 | | $17,400 | $19,800 | |
| | CITY COST INDEX MULTIPLIER | | | | | | | | |
| | DIFFICULTY FACTOR | | | | | | | | |
| | CONTINGENCY (15 %) | | | | $4,000 | | $7,400 | $11,400 | |
| | SIOH(5.5%) & DESIGN FEE(6%) | | | 5,000 | | 5,000 | | $10,000 | |
| | BASE TOTAL COST | | | | $30,000 | | $57,000 | $97,000 | |

G:\4130.05\SS\ECOS\ECO1B-#2.WK4

27-Jun-96

**Fuel Savings.**
(Natural Gas) The total yearly fuel savings associated with Option B of ECO-1 is $285,510 or $18,500 more than the base case.

| Savings | Heating (mmBtu/day) | Fuel (mmBtu/day) | Natural Gas (mcf/yr) | Fuel Cost ($/yr) |
|---|---|---|---|---|
| Totals | 29,030 | 39,235 | 38,055 | $285,510 |
| Percent Reduction | 57.8% | 59.7% | 59.7% | 59.7% |

**Electric Savings.** The total yearly savings (cost) when compared to ECO-1 (Base Case) is $2,991.

| Season | Demand (kW) | Off-Peak (kWh/yr) | On-Peak (kWh/yr) | Energy (mmBtu/yr) | Cost ($/yr) |
|---|---|---|---|---|---|
| Non-Summer | (110) | (149,568) | (71,184) | (753) | ($15,403) |
| Summer | 24 | (43,620) | (24,096) | (231) | ($4,258) |
| Totals | (86) | (193,188) | (95,280) | (984) | ($19,661) |
| Percent Reduction (Increase) | -18.6% | -121.1% | -157.4% | -131.0% | -108.3% |

**Operation/Maintenance Savings.** The savings are reduced from the Base Case by $20,000 increased costs to a total reduction of $170,000 ($190,000 - $20,000).

**Discussion.** Payback = 3.2 years

SIR = 5.0

The payback for the entire steam decentralization project including the decentralization of the DHW system itself is 3.2 years. Since it is worse than either ECO-1 (Base Case) and 1B, this ECO is not recommended. Maintaining the existing DHW distribution system appears to be the direction to maintain.

LIFE CYCLE COST ANALYSIS SUMMARY STUDY: MON1
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92)
INSTALLATION & LOCATION: REGION NOS. 2 CENSUS: 1
PROJECT NO. & TITLE:
FISCAL YEAR DISCRETE PORTION NAME: ECO#1E
ANALYSIS DATE: 07-03-96 ECONOMIC LIFE 20 YEARS PREPARED BY:

1. INVESTMENT

| | | |
|---|---|---|
| A. CONSTRUCTION COST | $ 1238000. | |
| B. SIOH | $ 69000. | |
| C. DESIGN COST | $ 75000. | |
| D. TOTAL COST (1A+1B+1C) | $ 1382000. | |
| E. SALVAGE VALUE OF EXISTING EQUIPMENT | $ 0. | |
| F. PUBLIC UTILITY COMPANY REBATE | $ 0. | |
| G. TOTAL INVESTMENT (1D - 1E - 1F) | | $ 1382000. |

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1995

| FUEL | UNIT COST $/MBTU(1) | SAVINGS MBTU/YR(2) | ANNUAL $ SAVINGS(3) | DISCOUNT FACTOR(4) | DISCOUNTED SAVINGS(5) |
|---|---|---|---|---|---|
| A. ELECT | $ 19.98 | -984. | $ -19660. | 13.86 | $ -272492. |
| B. DIST | $ .00 | 0. | $ 0. | 16.99 | $ 0. |
| C. RESID | $ .00 | 0. | $ 0. | 17.38 | $ 0. |
| D. NAT G | $ 7.28 | 39235. | $ 285631. | 17.14 | $ 4895712. |
| E. COAL | $ .00 | 0. | $ 0. | 13.56 | $ 0. |
| F. LPG | $ .00 | 0. | $ 0. | 15.12 | $ 0. |
| M. DEMAND SAVINGS | | | $ 0. | 13.47 | $ 0. |
| N. TOTAL | | 38251. | $ 265971. | | $ 4623220. |

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-) $ 170000.
(1) DISCOUNT FACTOR (TABLE A) 13.47
(2) DISCOUNTED SAVING/COST (3A X 3A1) $ 2289900.

B. NON RECURRING SAVINGS(+) / COSTS(-)

| ITEM | SAVINGS(+) COST(-) (1) | YR OC (2) | DISCNT FACTR (3) | DISCOUNTED SAVINGS(+)/ COST(-)(4) |
|---|---|---|---|---|
| d. TOTAL | $ 0. | | | 0. |

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4) $ 2289900.

4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE)) $ 435971.

5. SIMPLE PAYBACK PERIOD (1G/4) 3.17 YEARS

6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) $ 6913120.

7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= 5.00
(IF < 1 PROJECT DOES NOT QUALIFY)

## ECO-2
## OCCUPIED/UNOCCUPIED
## (5°F TEMPERATURE SETBACK MCA SYSTEM)

**Existing.** Currently the spaces served by the MCA chilled and hot water distribution systems are generally kept at constant temperatures during both the heating and cooling seasons. Some air handlers have the capability to shutdown during un-occupied time periods, however, field surveys indicated that these controls were generally not utilized. The MCA DOE simulation was modeled to reflect constant zone set points at 72°F during the heating season and 75°F during the cooling season. The annual heating and cooling costs for the MCA systems as calculated in the DOE simulation are $233,300. DOE simulation output can be found in Attachment 8.12

| Component | Demand (kW) | On-Peak (kWh) | Off-Peak (kWh) | Energy (mmBtu) | Cost ($) |
|---|---|---|---|---|---|
| Chillers | 2,310 | 301,229 | 281,018 | 1,987 | $60,700 |
| Tower Fan | 246 | 51,083 | 89,884 | 481 | $11,600 |
| Condenser Pump | 162 | 33,716 | 63,615 | 332 | $7,900 |
| Chilled Water Pump | 493 | 92,417 | 186,048 | 950 | $22,900 |
| Hot Water Pump | 120 | 18,691 | 33,228 | 177 | $4,400 |
| Air Handlers | 1,563 | 393,918 | 747,179 | 3,895 | $88,400 |
| Totals | 4,894 | 891,054 | 1,400,972 | 7,823 | $195,900 |

Electric Energy = 7,823 mmBtu/yr ((891,054 kWh + 1,400,972 kWh) x 3,413 Btu/kWh ÷ 1,000,000 mmBtu/kWh)

Gas Usage = 4,979 mcf/yr

Gas Energy = 5,128 mmBtu/yr (4,979 mcf/yr x 1.03 mmBtu/mcf)

DOE Simulation, MCA Chilled Water Plant, Existing

| Month | Chiller | | | Tower Fan | | | Condenser Pump | | | Chilled Water Pump | | | Air Handlers | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh |
| January | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 32,827 | 64,089 |
| February | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 29,700 | 57,835 |
| March | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 35,952 | 60,962 |
| April | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 32,827 | 60,962 |
| May | 369 | 23,982 | 19,785 | 41 | 5,108 | 8,502 | 27 | 3,499 | 6,680 | 91 | 9,638 | 21,339 | 130 | 32,827 | 64,089 |
| June | 442 | 68,071 | 59,135 | 41 | 10,784 | 17,499 | 27 | 6,998 | 12,087 | 94 | 19,055 | 34,579 | 130 | 34,390 | 59,399 |
| July | 422 | 66,972 | 75,300 | 41 | 9,870 | 20,090 | 27 | 6,361 | 13,359 | 94 | 17,459 | 36,150 | 130 | 31,263 | 65,652 |
| August | 441 | 76,939 | 63,923 | 41 | 11,339 | 18,287 | 27 | 7,316 | 12,405 | 94 | 20,086 | 34,499 | 130 | 35,952 | 60,962 |
| September | 365 | 51,299 | 48,917 | 41 | 10,016 | 17,281 | 27 | 6,680 | 12,405 | 91 | 18,054 | 37,094 | 130 | 32,827 | 60,962 |
| October | 271 | 13,966 | 13,958 | 41 | 3,966 | 8,225 | 27 | 2,863 | 6,680 | 88 | 8,126 | 22,386 | 130 | 31,263 | 65,652 |
| November | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 31,263 | 62,526 |
| December | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 32,827 | 64,089 |
| Totals | 2,310 | 301,229 | 281,018 | 246 | 51,083 | 89,884 | 162 | 33,717 | 63,616 | 493 | 92,417 | 186,048 | 1,563 | 393,918 | 747,179 |

| | | |
|---|---|---|
| Gas Cost | = | \$37,300 (4,979 mcf/yr x \$7.50/mcf = \$37,343, use \$37,300) |
| Total Energy | = | 12,951 mmBtu/yr (7,823 mmBtu/yr + 5,128 mmBtu/yr) |
| Total Cost | = | \$233,300 (\$196,000 + \$37,300) |

**Proposed.** Install time clocks and programmable thermostats for approximately 19 air handlers. The controls would be set to shutdown the systems for approximately 10 hours on a weekday and all day Saturday and Sunday. The thermostat would be set to override the fan based on a 5°F setback. The MCA DOE model was revised with the following parameters applied.

1. Begin setback at 7:00 pm
2. End setback at 5:00 am
3. Winter occupied temperature remains at 72°F
4. Winter unoccupied temperature set at 67°F
5. Summer occupied temperature set at 75°F
6. Summer unoccupied temperature set 80°F

The revised DOE model provided the following results:

| Component | Demand (kW) | On-Peak (kWh) | Off-Peak (kWh) | Energy (mmBtu) | Cost (\$) |
|---|---|---|---|---|---|
| Chillers | 2,310 | 314,618 | 249,900 | 1,927 | \$59,700 |
| Tower Fan | 246 | 51,301 | 88,022 | 476 | \$11,500 |
| Condenser Pump | 162 | 33,717 | 63,616 | 332 | \$7,900 |
| Chilled Water Pump | 493 | 100,247 | 178,218 | 950 | \$23,000 |
| Hot Water Pump | 120 | 18,691 | 26,489 | 154 | \$4,000 |
| Air Handlers | 1,563 | 393,918 | 220,549 | 2,097 | \$55,700 |
| Totals | 4,894 | 912,492 | 826,794 | 5,936 | \$161,800 |

DOE Simulation, MCA Chilled Water Plant, Temperature Setback, 5°F in Heating/Cooling

| Month | Chiller | | | Tower Fan | | | Condenser Pump | | | Chilled Water Pump | | | Air Handlers | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh |
| January | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 32,827 | 12,663 |
| February | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 29,700 | 10,349 |
| March | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 35,952 | 10,903 |
| April | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 32,827 | 20,025 |
| May | 369 | 26,018 | 19,112 | 41 | 5,146 | 8,451 | 27 | 3,499 | 6,680 | 91 | 9,638 | 21,339 | 130 | 32,827 | 29,071 |
| June | 442 | 74,161 | 52,459 | 41 | 10,814 | 17,111 | 27 | 6,998 | 12,087 | 94 | 19,055 | 34,579 | 130 | 34,390 | 22,074 |
| July | 422 | 73,015 | 65,405 | 41 | 9,873 | 19,555 | 27 | 6,361 | 13,359 | 94 | 17,459 | 36,150 | 130 | 31,263 | 26,689 |
| August | 441 | 83,886 | 54,548 | 41 | 11,349 | 17,713 | 27 | 7,316 | 12,405 | 94 | 20,086 | 34,499 | 130 | 35,952 | 22,669 |
| September | 365 | 56,024 | 44,042 | 41 | 10,101 | 16,954 | 27 | 6,680 | 12,405 | 91 | 18,054 | 37,094 | 130 | 32,827 | 20,521 |
| October | 271 | 1,514 | 14,334 | 41 | 4,018 | 8,238 | 27 | 2,863 | 6,680 | 88 | 8,126 | 22,386 | 130 | 31,263 | 19,908 |
| November | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 31,263 | 13,859 |
| December | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 32,827 | 11,818 |
| Totals | 2,310 | 314,618 | 249,900 | 246 | 51,301 | 88,022 | 162 | 33,717 | 63,616 | 493 | 92,417 | 186,048 | 1,563 | 393,918 | 220,549 |

| | | |
|---|---|---|
| Electric Energy | = | 5,936 mmBtu/yr ((912,492 kWh/yr + 826,794 kWh/yr) x 3,413 Btu/kWh ÷ 1,000,000 Btu/mmBtu) |
| Gas Usage | = | 4,374 mcf/yr |
| Gas Energy | = | 4,505 mmBtu/yr (4,374 mcf/yr x 1.031 mmBtu/mcf) |
| Gas Cost | = | $32,800 (4,374 mcf/yr x $7.50/mcf) |
| Total Cost | = | $194,600 ($161,800 + $32,800) |

**Construction Cost.** The expected construction cost is $51,500. (See Attached Cost Breakdown).

| | |
|---|---|
| Material | $ 21,900 |
| Labor | $ 24,300 |
| SIOH | $ 2,500 |
| Engineering | $ 2,800 |
| Total | $ 51,500 |

**Savings.** The annual cost savings resulting from the implementation of this project will be $38,700 ($233,300 - $194,600).

| Component | Demand (kW) | On-Peak (kWh) | Off-Peak (kWh) | Energy (mmBtu) | Cost ($) |
|---|---|---|---|---|---|
| Totals | 0 | (21,438) | 574,178 | 1,887 | $34,200 |
| Percent Reduction | 0.0% | -2.4% | 64.4% | 24.1% | 17.4% |

| | | |
|---|---|---|
| Gas Usage | = | 605 mcf/yr (4,979 mcf/yr - 4,374 mcf/yr) |
| Gas Energy | = | 623 mmBtu/yr (5,128 mmBtu/r - 4,505 mmBtu/yr) |
| Gas Cost | = | $4,500 ($37,300 - $32,800) |

Total Savings = \$38,700 (\$34,200 + \$4,500)

**Maintenance Savings:** There is no additional monetary savings due to reduced maintenance.

**Discussion.**

Payback = 1.3 years

SIR = 10.7

The expected payback resulting from the implementation of this project is 1.3 years. This ECO is recommended for implementation. The controlled MCA system(s) setback scenario described here will have significant savings. The feasibility of utilizing the existing clocks on the MCA units will have to be performed during the design phase of this project.

Other areas (units) that are not strictly MCA 2-pipe systems may be able to incorporate this type of control. Speculation on those areas and units was not made with this study because of the uncertainty of the application. Additional savings maybe realized if such units can be adapted with these controls.

# FORT MONMOUTH
# PROJECT COST ESTIMATE
***5°F Temperature Setback MCA Systems***

| NO. | DESCRIPTION | QTY | UNIT | MATERIAL | | LABOR | | TOTAL BARE COST |
|---|---|---|---|---|---|---|---|---|
| | | | | $/UNIT | COST | $/UNIT | COST | |
| 1 | Electronic Time Clocks | 19 | Each | $300.00 | $5,700 | $150.00 | $2,850 | $8,550 |
| 2 | Programmable Thermostats | 19 | Each | $150.00 | $2,850 | $100.00 | $1,900 | $4,750 |
| 3 | Electric, Wiring, Switches | 19 | Each | $500.00 | $9,500 | $500.00 | $9,500 | $19,000 |
| 4 | | | | | $0 | | $0 | $0 |
| 5 | | | | | $0 | | $0 | $0 |
| 6 | | | | | $0 | | $0 | $0 |
| 7 | | | | | $0 | | $0 | $0 |
| 8 | | | | | $0 | | $0 | $0 |
| 9 | | | | | $0 | | $0 | $0 |
| 10 | | | | | $0 | | $0 | $0 |
| 11 | | | | | $0 | | $0 | $0 |
| 12 | | | | | $0 | | $0 | $0 |
| 13 | | | | | $0 | | $0 | $0 |
| 14 | | | | | $0 | | $0 | $0 |
| 15 | | | | | $0 | | $0 | $0 |
| 16 | | | | | $0 | | $0 | $0 |
| 17 | | | | | $0 | | $0 | $0 |
| 18 | | | | | $0 | | $0 | $0 |
| 19 | | | | | $0 | | $0 | $0 |
| 20 | | | | | $0 | | $0 | $0 |
| 21 | | | | | $0 | | $0 | $0 |
| 22 | | | | | $0 | | $0 | $0 |
| 23 | | | | | $0 | | $0 | $0 |
| 24 | | | | | $0 | | $0 | $0 |
| 25 | | | | | $0 | | $0 | $0 |
| 26 | | | | | $0 | | $0 | $0 |
| 27 | | | | | $0 | | $0 | $0 |
| 28 | | | | | $0 | | $0 | $0 |
| 29 | | | | | $0 | | $0 | $0 |
| 30 | | | | | $0 | | $0 | $0 |
| 31 | | | | | $0 | | $0 | $0 |
| 32 | | | | | $0 | | $0 | $0 |
| 33 | | | | | $0 | | $0 | $0 |
| 34 | | | | | $0 | | $0 | $0 |
| 35 | | | | | $0 | | $0 | $0 |
| 36 | | | | | $0 | | $0 | $0 |
| 37 | | | | | $0 | | $0 | $0 |
| 38 | | | | | $0 | | $0 | $0 |
| 39 | | | | | $0 | | $0 | $0 |
| 40 | | | | | $0 | | $0 | $0 |
| 41 | | | | | $0 | | $0 | $0 |
| 42 | | | | | $0 | | $0 | $0 |
| 43 | | | | | $0 | | $0 | $0 |
| 44 | | | | | $0 | | $0 | $0 |
| 45 | | | | | $0 | | $0 | $0 |
| 46 | | | | | $0 | | $0 | $0 |
| 47 | | | | | $0 | | $0 | $0 |
| 48 | | | | | $0 | | $0 | $0 |
| 49 | | | | | $0 | | $0 | $0 |
| 50 | | | | | $0 | | $0 | $0 |
| 51 | | | | | $0 | | $0 | $0 |
| 52 | | | | | $0 | | $0 | $0 |
| 53 | | | | | $0 | | $0 | $0 |
| 54 | | | | | $0 | | $0 | $0 |
| 55 | | | | | $0 | | $0 | $0 |
| 56 | | | | | $0 | | $0 | $0 |
| 57 | | | | | $0 | | $0 | $0 |
| 58 | | | | | $0 | | $0 | $0 |
| 59 | | | | | $0 | | $0 | $0 |
| 60 | | | | | $0 | | $0 | $0 |
| 61 | | | | | $0 | | $0 | $0 |
| 62 | | | | | $0 | | $0 | $0 |
| 63 | | | | | $0 | | $0 | $0 |
| | SUBTOTAL | | | | | | | $32,300 |
| | OVERHEAD AND PROFIT | | | | $1,800 | | $7,800 | $9,600 |
| | CITY COST INDEX MULTIPLIER | | | | | | | |
| | DIFFICULTY FACTOR | | | | | | | |
| | CONTINGENCY | | | | $2,000 | | $2,200 | $4,200 |
| | SIOH(5.5%) & DESIGN FEE(6%) | | | $2,500 | | $2,800 | | $5,300 |
| | **BASE TOTAL COST** | | | | **$21,850** | | **$24,250** | **$51,400** |

LIFE CYCLE COST ANALYSIS SUMMARY STUDY: MON1
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92)
INSTALLATION & LOCATION: REGION NOS. 2 CENSUS: 1
PROJECT NO. & TITLE:
FISCAL YEAR DISCRETE PORTION NAME: ECO#2
ANALYSIS DATE: 07-03-96 ECONOMIC LIFE 20 YEARS PREPARED BY:

1. INVESTMENT

| | | |
|---|---|---|
| A. CONSTRUCTION COST | $ 46200. | |
| B. SIOH | $ 2500. | |
| C. DESIGN COST | $ 2800. | |
| D. TOTAL COST (1A+1B+1C) | $ 51500. | |
| E. SALVAGE VALUE OF EXISTING EQUIPMENT | $ 0. | |
| F. PUBLIC UTILITY COMPANY REBATE | $ 0. | |
| G. TOTAL INVESTMENT (1D - 1E - 1F) | | $ 51500. |

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1995

| FUEL | UNIT COST $/MBTU(1) | SAVINGS MBTU/YR(2) | ANNUAL $ SAVINGS(3) | DISCOUNT FACTOR(4) | DISCOUNTED SAVINGS(5) |
|---|---|---|---|---|---|
| A. ELECT | $ 18.12 | 1887. | $ 34192. | 13.86 | $ 473907. |
| B. DIST | $ .00 | 0. | $ 0. | 16.99 | $ 0. |
| C. RESID | $ .00 | 0. | $ 0. | 17.38 | $ 0. |
| D. NAT G | $ 7.28 | 623. | $ 4535. | 17.14 | $ 77737. |
| E. COAL | $ .00 | 0. | $ 0. | 13.56 | $ 0. |
| F. LPG | $ .00 | 0. | $ 0. | 15.12 | $ 0. |
| M. DEMAND SAVINGS | | | $ 0. | 13.47 | $ 0. |
| N. TOTAL | | 2510. | $ 38728. | | $ 551645. |

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-) $ 0.
(1) DISCOUNT FACTOR (TABLE A) 13.47
(2) DISCOUNTED SAVING/COST (3A X 3A1) $ 0.

B. NON RECURRING SAVINGS(+) / COSTS(-)

| ITEM | SAVINGS(+) COST(-) (1) | YR OC (2) | DISCNT FACTR (3) | DISCOUNTED SAVINGS(+)/ COST(-)(4) |
|---|---|---|---|---|
| d. TOTAL | $ 0. | | | 0. |

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4) $ 0.

4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE)) $ 38728.

5. SIMPLE PAYBACK PERIOD (1G/4) 1.33 YEARS

6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) $ 551645.

7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= 10.71
(IF < 1 PROJECT DOES NOT QUALIFY)

## ECO-3
## REDUCE BUILDING INFILTRATION

**Existing.** Currently Building 2700 is under a negative pressure. Section 5.4.3 established that an estimated 25,000 cfm of outside air is drawn into the building by exhaust fans. This outside air is over and above the 65,000 cfm brought into the building by existing supply fans, totaling 90,000 cfm. This is partly due to the installation of exhaust side equipment without modifications to the supply side. Most of the exhaust fans operate continuously all year. The existing DOE models for both the MCA systems and miscellaneous cooling/heating systems were modeled to reflect this condition. As stated in Section 5, infiltration factors were applied to spaces not receiving outside air from other sources. An infiltration factor of 0.8 air changes per hour was applied. Based on the DOE models, the annual estimated energy cost for the direct heating and cooling (excluding losses) at Building 2700 is $671,200. Individual components are summarized below and shown in detail on the attached table titled "Existing Operation".

| Component | Demand kW | On-Peak kWh/yr | Off-Peak kWh/yr | Energy mmBtu | Cost $/yr |
|---|---|---|---|---|---|
| Chillers | 2,310 | 301,229 | 281,018 | 1,987 | $60,700 |
| Tower Fan | 246 | 51,083 | 89,884 | 481 | $11,600 |
| Condenser Pump | 162 | 33,716 | 63,615 | 332 | $7,900 |
| Chilled Water Pump | 493 | 92,417 | 186,048 | 950 | $22,900 |
| Miscellaneous Cooling | 8,632 | 1,924,765 | 2,947,124 | 16,628 | $406,900 |
| Totals | 11,843 | 2,403,210 | 3,567,689 | 20,379 | $510,000 |

Electric Energy = 20,379 mmBtu/yr ((2,403,210 kWh/yr + 3,567,689 kWh/yr) x 3,413 Btu/kWh ÷ 1,000,000 Btu/mmBtu)

Gas Usage = 21,495 mcf/yr

DOE Simulation, MCA Chilled Water Plant, Existing

| Month | Chiller | | | Tower Fan | | | Condenser Pump | | | Chilled Water Pump | | | Air Handlers | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh |
| January | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 32,827 | 64,089 |
| February | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 29,700 | 57,835 |
| March | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 35,952 | 60,962 |
| April | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 32,827 | 60,962 |
| May | 369 | 23,982 | 19,785 | 41 | 5,108 | 8,502 | 27 | 3,499 | 6,680 | 91 | 9,638 | 21,339 | 130 | 32,827 | 64,089 |
| June | 442 | 68,071 | 59,135 | 41 | 10,784 | 17,499 | 27 | 6,998 | 12,087 | 94 | 19,055 | 34,579 | 130 | 34,390 | 59,399 |
| July | 422 | 66,972 | 75,300 | 41 | 9,870 | 20,090 | 27 | 6,361 | 13,359 | 94 | 17,459 | 36,150 | 130 | 31,263 | 65,652 |
| August | 441 | 76,939 | 63,923 | 41 | 11,339 | 18,287 | 27 | 7,316 | 12,405 | 94 | 20,086 | 34,499 | 130 | 35,952 | 60,962 |
| September | 365 | 51,299 | 48,917 | 41 | 10,016 | 17,281 | 27 | 6,680 | 12,405 | 91 | 18,054 | 37,094 | 130 | 32,827 | 60,962 |
| October | 271 | 13,966 | 13,958 | 41 | 3,966 | 8,225 | 27 | 2,863 | 6,680 | 88 | 8,126 | 22,386 | 130 | 31,263 | 65,652 |
| November | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 31,263 | 62,526 |
| December | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 32,827 | 64,089 |
| Totals | 2,310 | 301,229 | 281,018 | 246 | 51,083 | 89,884 | 162 | 33,717 | 63,616 | 493 | 92,417 | 186,048 | 1,563 | 393,918 | 747,179 |

DOE Simulation, Miscellaneous Cooling Systems Existing

| Month | Compressors Annual kW | Compressors On-Peak kWh | Compressors Off-Peak kWh |
|---|---|---|---|
| January | 625 | 147,207 | 215,701 |
| February | 629 | 134,580 | 197,257 |
| March | 661 | 166,081 | 226,298 |
| April | 706 | 157,177 | 240,597 |
| May | 763 | 159,263 | 263,408 |
| June | 822 | 182,764 | 257,414 |
| July | 789 | 169,327 | 291,007 |
| August | 812 | 195,302 | 267,450 |
| September | 755 | 167,237 | 258,514 |
| October | 706 | 150,853 | 264,296 |
| November | 718 | 146,315 | 239,287 |
| December | 646 | 148,658 | 225,894 |
| Totals | 8,632 | 1,924,765 | 2,947,124 |
| Electric Model | 11,300 | 1,769,657 | 2,471,473 |
| % Variance | 24% | -9% | -19% |

| Season | Demand | On-Peak kWh | Off-Peak kWh |
|---|---|---|---|
| Summer | 3,178 | 714,631 | 1,074,385 |
| Non-Summer | 5,454 | 1,210,134 | 1,872,739 |

| Season | Cost |
|---|---|
| Summer | $151,700 |
| Non-Summer | $255,200 |

| | | |
|---|---|---|
| Gas Energy | = | 22,140 mmBtu/yr (21,495 mcf/yr x 1.031 mmBtu/mcf) |
| Gas Cost | = | $161,200 (21,495 mcf/yr x $7.50/mcf = $161,213, use $161,200) |
| Total Energy | = | 42,519 mmBtu/yr (20,379 mmBtu/yr + 22,140 mmBtu/yr) |
| Total Cost | = | $671,200 ($510,000 + $161,200) |

**Proposed.** Reduce exhaust loads to a level comparable to the supply side. Due to the complexity of the existing systems it is highly unlikely that exhaust loads can be reduced to such a level. Rather it is within reason to estimate that approximately 25% of the additional exhaust load can be removed. This can be accomplished by disconnecting/shutting down fans which are no longer needed or replacing oversized fans with smaller ones. DOE simulation models were adjusted to reflect a 25% decrease in the amount of infiltration experienced. All spaces attributed with an air change factor of 0.8 were changed to 0.6. The above change lowered annual heating and cooling costs to $661,500 as shown in the following table.

| Component | Demand kW | On-Peak kWh/yr | Off-Peak kWh/yr | Energy mmBtu | Cost $/yr |
|---|---|---|---|---|---|
| Chillers | 2,310 | 300,300 | 282,521 | 1,989 | $60,700 |
| Tower Fan | 246 | 51,160 | 89,957 | 482 | $11,600 |
| Condenser Pump | 162 | 33,717 | 63,616 | 332 | $7,900 |
| Chilled Water Pump | 493 | 92,417 | 186,048 | 950 | $22,900 |
| Miscellaneous Cooling | 8,632 | 1,924,765 | 2,947,124 | 16,628 | $406,900 |
| Totals | 11,843 | 2,402,359 | 3,569,266 | 20,381 | $510,000 |

DOE Simulation, MCA Chilled Water Plant, Reduced Infiltration

| | Chiller | | | Tower Fan | | | Condenser Pump | | | Chilled Water Pump | | | Air Handlers | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Month | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh |
| January | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 32,827 | 64,089 |
| February | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 29,700 | 57,835 |
| March | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 35,952 | 60,962 |
| April | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 32,827 | 60,962 |
| May | 361 | 24,436 | 20,354 | 41 | 5,134 | 8,528 | 27 | 3,499 | 6,680 | 91 | 9,638 | 21,339 | 130 | 32,827 | 64,089 |
| June | 428 | 67,471 | 59,318 | 41 | 10,787 | 17,512 | 27 | 6,998 | 12,087 | 94 | 19,055 | 34,579 | 130 | 34,390 | 59,399 |
| July | 410 | 66,337 | 74,957 | 41 | 9,870 | 20,081 | 27 | 6,361 | 13,359 | 94 | 17,459 | 36,150 | 130 | 31,263 | 65,652 |
| August | 426 | 76,186 | 63,852 | 41 | 11,339 | 18,285 | 27 | 7,316 | 12,405 | 94 | 20,086 | 34,499 | 130 | 35,952 | 60,962 |
| September | 356 | 51,429 | 49,593 | 41 | 10,034 | 17,307 | 27 | 6,680 | 12,405 | 91 | 18,054 | 37,094 | 130 | 32,827 | 60,962 |
| October | 271 | 14,441 | 14,447 | 41 | 3,996 | 8,244 | 27 | 2,863 | 6,680 | 88 | 8,126 | 22,386 | 130 | 31,263 | 65,652 |
| November | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 31,263 | 62,526 |
| December | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 32,827 | 64,089 |
| Totals | 2,252 | 300,300 | 282,521 | 246 | 51,160 | 89,957 | 162 | 33,717 | 63,616 | 493 | 92,417 | 186,048 | 1,563 | 393,918 | 747,179 |

DOE Simulation, Miscellaneous Cooling Systems Reduced Infiltration

| Month | Compressors Annual kW | On-Peak kWh | Off-Peak kWh |
|---|---|---|---|
| January | 625 | 147,207 | 215,701 |
| February | 629 | 134,580 | 197,257 |
| March | 661 | 166,081 | 226,298 |
| April | 706 | 157,177 | 240,597 |
| May | 763 | 159,263 | 263,408 |
| June | 822 | 182,764 | 257,414 |
| July | 789 | 169,327 | 291,007 |
| August | 812 | 195,302 | 267,450 |
| September | 755 | 167,237 | 258,514 |
| October | 706 | 150,853 | 264,296 |
| November | 718 | 146,315 | 239,287 |
| December | 646 | 148,658 | 225,894 |
| Totals | 8,632 | 1,924,765 | 2,947,124 |
| Electric Model | 11,300 | 1,769,657 | 2,471,473 |
| % Variance | 24% | -9% | -19% |

| Season | Demand | On-Peak kWh | Off-Peak kWh |
|---|---|---|---|
| Summer | 3,178 | 714,631 | 1,074,385 |
| Non-Summer | 5,454 | 1,210,134 | 1,872,739 |

| Season | Cost |
|---|---|
| Summer | $151,700 |
| Non-Summer | $255,200 |

| | | |
|---|---|---|
| Electric Energy | = | 20,381 mmBtu/yr ((2,402,359 kWh/yr + 3,569,266 kWh/yr) x 3,413 Btu/kWh ÷ 1,000,000 Btu/mmBtu) |
| Gas Usage | = | 20,205 mcf/yr |
| Gas Energy | = | 20,811 mmBtu/yr (20,205 mcf/yr x 1.03 mmBtu/mcf) |
| Gas Cost | = | $151,500 (20,205 mcf/yr x $7.50/mcf = $151,538, use $151,500) |
| Total Energy | = | 41,192 mmBtu/yr (20,381 mmBtu/yr + 20,811 mmBtu/yr) |
| Total Cost | = | $661,500 ($510,000 + $151,500) |

**Construction Cost.** Estimating the costs associated with realizing these changes are difficult to predict without performing a detailed design analysis. In order to qualify for ECIP funding, this ECO would need to be at a 9.9 year payback period. In order to achieve this, the construction cost associated with obtaining a 9.9 year payback period is $96,000.

| | |
|---|---|
| Material | $ 43,000 |
| Labor | $ 43,000 |
| SIOH | $ 4,700 |
| Engineering | $ 5,300 |
| Total | $ 96,000 |

**Savings.** The annual cost savings resulting from the implementation of this project will be $9,700 ($671,200 - $661,500). These savings in dollars were for the most part realized by the fuel (natural gas) savings only.

| | | |
|---|---|---|
| Demand kW | = | 0 kW/yr (11,843 kW/yr - 11,843 kW/yr) |

On-Peak kWh = 851 kWh/yr (2,403,210 kWh/yr - 2,402,359 kWh/yr)

Off-Peak kWh = -1,577 kWh/yr (3,567,689 kWh/yr - 3,569,266 kWh/yr)

Gas Usage = 1,290 mcf/yr (21,495 mcf/yr - 20,205 mcf/yr)

Energy Usage = 1,326 mmBtu [(851 kWh/y - 1,577 kWh/yr) x 3,413 Btu/kWh) + (1,290 mcf/yr x 1,031,000 Btu/mcf) ÷ 1,000,000 Btu/mmBtu]

| Component | Demand kW | On-Peak kWh/yr | Off-Peak kWh/yr | Energy mmbtu | Cost $/yr |
|---|---|---|---|---|---|
| Chillers | 0 | 929 | (1,503) | (2) | $0 |
| Tower Fan | 0 | (77) | (73) | (1) | $0 |
| Condenser Pump | 0 | (1) | (1) | 0 | $0 |
| Chilled Water Pump | 0 | 0 | 0 | 0 | $0 |
| Miscellaneous Cooling | 0 | 0 | 0 | 0 | $0 |
| Totals | 0 | 851 | (1,577) | (2) | $0 |

**Maintenance Savings.** There is no additional monetary savings due to reduced maintenance.

**Discussion.** Payback = 9.9 years

SIR = 1.7

The payback for this model is 9.9 years. Survey work is required to resolve issues surrounding exhaust minimization in this building. Efforts to reduce the negative pressure will result in cost savings.

LIFE CYCLE COST ANALYSIS SUMMARY — STUDY: MON1
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) — LCCID FY95 (92)

INSTALLATION & LOCATION: REGION NOS. 2 CENSUS: 1
PROJECT NO. & TITLE:
FISCAL YEAR DISCRETE PORTION NAME: ECO#3
ANALYSIS DATE: 07-03-96 ECONOMIC LIFE 20 YEARS PREPARED BY:

1. INVESTMENT

| | | | |
|---|---|---|---|
| A. CONSTRUCTION COST | $ 86000. | | |
| B. SIOH | $ 4700. | | |
| C. DESIGN COST | $ 5300. | | |
| D. TOTAL COST (1A+1B+1C) | $ 96000. | | |
| E. SALVAGE VALUE OF EXISTING EQUIPMENT | | $ 0. | |
| F. PUBLIC UTILITY COMPANY REBATE | | $ 0. | |
| G. TOTAL INVESTMENT (1D - 1E - 1F) | | | $ 96000. |

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1995

| FUEL | UNIT COST $/MBTU(1) | SAVINGS MBTU/YR(2) | ANNUAL $ SAVINGS(3) | DISCOUNT FACTOR(4) | DISCOUNTED SAVINGS(5) |
|---|---|---|---|---|---|
| A. ELECT | $ .00 | 0. | $ 0. | 13.86 | $ 0. |
| B. DIST | $ .00 | 0. | $ 0. | 16.99 | $ 0. |
| C. RESID | $ .00 | 0. | $ 0. | 17.38 | $ 0. |
| D. NAT G | $ 7.28 | 1329. | $ 9675. | 17.14 | $ 165832. |
| E. COAL | $ .00 | 0. | $ 0. | 13.56 | $ 0. |
| F. LPG | $ .00 | 0. | $ 0. | 15.12 | $ 0. |
| M. DEMAND SAVINGS | | | $ 0. | 13.47 | $ 0. |
| N. TOTAL | | 1329. | $ 9675. | | $ 165832. |

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-) $ 0.
(1) DISCOUNT FACTOR (TABLE A) 13.47
(2) DISCOUNTED SAVING/COST (3A X 3A1) $ 0.

B. NON RECURRING SAVINGS(+) / COSTS(-)

| ITEM | SAVINGS(+) COST(-) (1) | YR OC (2) | DISCNT FACTR (3) | DISCOUNTED SAVINGS(+)/ COST(-)(4) |
|---|---|---|---|---|
| d. TOTAL | $ 0. | | | 0. |

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4) $ 0.

4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE)) $ 9675.

5. SIMPLE PAYBACK PERIOD (1G/4) 9.92 YEARS

6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) $ 165832.

7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= 1.73
(IF < 1 PROJECT DOES NOT QUALIFY)

## ECO-4
## REPLACE EXISTING CENTRAL CHILLER(S)

**Existing.** Presently, the MCA-CHW system is supported by two 690 ton centrifugal chillers installed in Building 2706. They are operated from May 15 to October 15, alternating from month to month during that period. The chillers were installed as part of the Major Construction Activities (MCA) project in 1982.

These units were rated at 0.78 kW/ton at the time of the installation. The electric model simulates one unit with a connected kW of 538, operating the entire period. The units' estimated yearly demand and usage totals were calculated to be 1,937 kW and 1,011,440 kWh respectively.

The yearly (7-month) costs to operate one chiller is estimated to be $85,082.

| Season | Demand (kW) | Off-Peak (kWh/yr) | On-Peak (kWh/yr) | Energy (mmBtu/yr) | Cost ($/yr) |
|---|---|---|---|---|---|
| Non-Summer | 323 | 64,560 | 86,080 | 514 | $12,941 |
| Summer | 1,614 | 516,480 | 344,320 | 2,938 | $72,141 |
| Totals | 1,937 | 581,040 | 430,400 | 3,452 | $85,082 |

**Proposed.** The proposed change is to replace one of the chillers with a newer more efficient chiller of the same capacity. The typical kW/ton rating for present day chillers of this size is around 0.5 to 0.55. Entech will use 0.55 kW/ton which equates to a connected load of 380 kW.

Re-calculating the electric model using the linear difference between units operation rating yields demand and usage total of 1,367 kW and 713,460 kWh. The cost are expected to be reduced to about $60,016/yr.

| Season | Demand (kW) | Off-Peak (kWh/yr) | On-Peak (kWh/yr) | Energy (mmBtu) | Cost ($/yr) |
|---|---|---|---|---|---|
| Non-Summer | 228 | 45,540 | 60,720 | 363 | $9,128 |
| Summer | 1,139 | 364,320 | 242,880 | 2,072 | $50,888 |
| Totals | 1,367 | 409,860 | 303,600 | 2,435 | $60,016 |

**Construction Cost.** The estimated costs for replacing one of the two chillers in Building 2706 is $288,900.

| | |
|---|---|
| Material | $195,800 |
| Labor | 63,100 |
| SIOH | 14,000 |
| Engineering | 16,000 |
| Total | $288,900 |

**Savings.** The total yearly savings associated with this ECO is $25,066.

| Season | Demand (kW) | Off-Peak (kWh/yr) | On-Peak (kWh/yr) | Energy (mmBtu) | Cost ($/yr) |
|---|---|---|---|---|---|
| Non-Summer | 95 | 19,020 | 25,360 | 151 | $3,813 |
| Summer | 475 | 152,320 | 101,440 | 866 | $21,253 |
| Totals | 570 | 171,340 | 126,800 | 1,017 | $25,066 |
| Percent Reduction | 29.5% | 29.5% | 29.5% | 29.5% | 29.5% |

**Maintenance Savings.** There are no significant maintenance savings associated with this ECO.

**Discussion.**

Payback = 11.5 years

SIR = 1.20

These are the results of the ECOs Life Cycle Analysis and a copy of it can be found attached.

This ECO is not recommended. If the chiller experienced significant year round loads, then the results might have been more attractive.

## FORT MONMOUTH
## PROJECT COST ESTIMATE
***REPLACE MCA CHILLER (EC0-4)***

| NO. | DESCRIPTION | QTY | UNIT | MATERIAL | | LABOR | | TOTAL BARE COST |
|---|---|---|---|---|---|---|---|---|
| | | | | $/UNIT | COST | $/UNIT | COST | |
| 1 | Remove existing chiller | 1 | Each | $5,000.00 | $5,000 | $10,000.00 | $10,000 | $15,000 |
| 2 | Install replacement chiller | 1 | Each | $151,800.00 | $151,800 | $20,000.00 | $20,000 | $171,800 |
| 3 | Piping, foundation, etc. rework | 1 | Lot | $2,000.00 | $2,000 | $5,000.00 | $5,000 | $7,000 |
| 4 | Electrical wiring, connections, etc. | 1 | Lot | $3,000.00 | $3,000 | $2,000.00 | $2,000 | $5,000 |
| 5 | | | | | $0 | | $0 | $0 |
| 6 | | | | | $0 | | $0 | $0 |
| 7 | | | | | $0 | | $0 | $0 |
| 8 | | | | | $0 | | $0 | $0 |
| 9 | | | | | $0 | | $0 | $0 |
| 10 | | | | | $0 | | $0 | $0 |
| 11 | | | | | $0 | | $0 | $0 |
| 12 | | | | | $0 | | $0 | $0 |
| 13 | | | | | $0 | | $0 | $0 |
| 14 | | | | | $0 | | $0 | $0 |
| 15 | | | | | $0 | | $0 | $0 |
| 16 | | | | | $0 | | $0 | $0 |
| 17 | | | | | $0 | | $0 | $0 |
| 18 | | | | | $0 | | $0 | $0 |
| 19 | | | | | $0 | | $0 | $0 |
| 20 | | | | | $0 | | $0 | $0 |
| 21 | | | | | $0 | | $0 | $0 |
| 22 | | | | | $0 | | $0 | $0 |
| 23 | | | | | $0 | | $0 | $0 |
| 24 | | | | | $0 | | $0 | $0 |
| 25 | | | | | $0 | | $0 | $0 |
| 26 | | | | | $0 | | $0 | $0 |
| 27 | | | | | $0 | | $0 | $0 |
| 28 | | | | | $0 | | $0 | $0 |
| 29 | | | | | $0 | | $0 | $0 |
| 30 | | | | | $0 | | $0 | $0 |
| 31 | | | | | $0 | | $0 | $0 |
| 32 | | | | | $0 | | $0 | $0 |
| 33 | | | | | $0 | | $0 | $0 |
| 34 | | | | | $0 | | $0 | $0 |
| 35 | | | | | $0 | | $0 | $0 |
| 36 | | | | | $0 | | $0 | $0 |
| 37 | | | | | $0 | | $0 | $0 |
| 38 | | | | | $0 | | $0 | $0 |
| 39 | | | | | $0 | | $0 | $0 |
| 40 | | | | | $0 | | $0 | $0 |
| 41 | | | | | $0 | | $0 | $0 |
| 42 | | | | | $0 | | $0 | $0 |
| 43 | | | | | $0 | | $0 | $0 |
| 44 | | | | | $0 | | $0 | $0 |
| 45 | | | | | $0 | | $0 | $0 |
| 46 | | | | | $0 | | $0 | $0 |
| 47 | | | | | $0 | | $0 | $0 |
| 48 | | | | | $0 | | $0 | $0 |
| 49 | | | | | $0 | | $0 | $0 |
| 50 | | | | | $0 | | $0 | $0 |
| 51 | | | | | $0 | | $0 | $0 |
| | SUBTOTAL | | | | | | | $198,800 |
| | OVERHEAD AND PROFIT | | | | $16,200 | | $20,400 | $36,600 |
| | CITY COST INDEX MULTIPLIER | | | | | | | |
| | DIFFICULTY FACTOR | | | | | | | |
| | CONTINGENCY | | | | $17,800 | | $5,700 | $23,500 |
| | SIOH(5.5%) & DESIGN FEE(6%) | | | 14,000 | | 16,000 | | $30,000 |
| | **BASE TOTAL COST** | | | | $195,800 | | $63,100 | $288,900 |

G:\4130.05\SS\ECOS\ECO-4CE.WK4 28-Jun-96

LIFE CYCLE COST ANALYSIS SUMMARY STUDY: MON1
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92)
INSTALLATION & LOCATION: REGION NOS. 2 CENSUS: 1
PROJECT NO. & TITLE:
FISCAL YEAR DISCRETE PORTION NAME: ECO#4
ANALYSIS DATE: 07-03-96 ECONOMIC LIFE 20 YEARS PREPARED BY:

1. INVESTMENT

| | | | |
|---|---|---|---|
| A. CONSTRUCTION COST | $ 259000. | | |
| B. SIOH | $ 14000. | | |
| C. DESIGN COST | $ 16000. | | |
| D. TOTAL COST (1A+1B+1C) | $ 289000. | | |
| E. SALVAGE VALUE OF EXISTING EQUIPMENT | | $ 0. | |
| F. PUBLIC UTILITY COMPANY REBATE | | $ 0. | |
| G. TOTAL INVESTMENT (1D - 1E - 1F) | | | $ 289000. |

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1995

| FUEL | UNIT COST $/MBTU(1) | SAVINGS MBTU/YR(2) | ANNUAL $ SAVINGS(3) | DISCOUNT FACTOR(4) | DISCOUNTED SAVINGS(5) |
|---|---|---|---|---|---|
| A. ELECT | $ 24.62 | 1018. | $ 25063. | 13.86 | $ 347375. |
| B. DIST | $ .00 | 0. | $ 0. | 16.99 | $ 0. |
| C. RESID | $ .00 | 0. | $ 0. | 17.38 | $ 0. |
| D. NAT G | $ 7.28 | 0. | $ 0. | 17.14 | $ 0. |
| E. COAL | $ .00 | 0. | $ 0. | 13.56 | $ 0. |
| F. LPG | $ .00 | 0. | $ 0. | 15.12 | $ 0. |
| M. DEMAND SAVINGS | | | $ 0. | 13.47 | $ 0. |
| N. TOTAL | | 1018. | $ 25063. | | $ 347375. |

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-) $ 0.
(1) DISCOUNT FACTOR (TABLE A) 13.47
(2) DISCOUNTED SAVING/COST (3A X 3A1) $ 0.

B. NON RECURRING SAVINGS(+) / COSTS(-)

| ITEM | SAVINGS(+) COST(-) (1) | YR OC (2) | DISCNT FACTR (3) | DISCOUNTED SAVINGS(+)/ COST(-)(4) |
|---|---|---|---|---|
| d. TOTAL | $ 0. | | | 0. |

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4) $ 0.

4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE)) $ 25063.

5. SIMPLE PAYBACK PERIOD (1G/4) 11.53 YEARS

6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) $ 347375.

7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= 1.20
(IF < 1 PROJECT DOES NOT QUALIFY)

## ECO-5
## CONVERT SPECIFIC AIR COOLED CHILLERS TO WATER COOLED CHILLERS

**Existing.** Building 2700 utilized a variety of cooling equipment. Included in that equipment are five (5) air cooled water chillers excluding the large chiller supporting the three cleanrooms on the fourth floor.

The existing electric costs for these five (5) are estimated to be near $49,100. Refer to Table ECO-5-E for the existing analysis.

| Season | Demand (kW) | Off-Peak (kWh/yr) | On-Peak (kWh/yr) | Energy (mmBtu/yr) | Cost ($/yr) |
|---|---|---|---|---|---|
| Non-Summer | 812 | 110,377 | 186,937 | 1,015 | $27,161 |
| Summer | 620 | 99,132 | 138,522 | 811 | $21,952 |
| Totals | 1,432 | 209,509 | 325,459 | 1,826 | $49,113 |

**Proposed.** To replace the existing air cooled chillers with water cooled chillers with better kW/ton efficiency utilizing the existing cooling towers on the roof.

Water cooled versus air cooled in the size range (20-100 tons) being evaluated will reduce the overall energy consumption of each by about 15%. Applying that figure directly to the connected kW will yield the savings expected. For simplification we will assume the new loads on the towers can be accommodated and that the new loads/flows will not effect the tower energy.

The electric costs associated with operating these five (5) systems with water cooled chillers is estimated to be near $41,750. Refer to table ECO-5-P for the proposed analysis.

| Season | Demand (kW) | Off-Peak (kWh/yr) | On-Peak (kWh/yr) | Energy (mmBtu/yr) | Cost ($/yr) |
|---|---|---|---|---|---|
| Non-Summer | 690 | 93,821 | 158,897 | 863 | $23,087 |
| Summer | 527 | 84,263 | 117,744 | 689 | $18,659 |
| Totals | 1,217 | 178,084 | 276,641 | 1,552 | $41,746 |

**Construction Cost.** The construction costs to implement this ECO are estimated to be near $278,500. Refer to the estimate attached.

| | |
|---|---|
| Material | $154,900 |
| Labor | 94,600 |
| SIOH | 14,000 |
| Engineering | 15,000 |
| Total | $278,500 |

**Savings.** The electric energy cost savings associated with implementing this ECO is approximately $7,370.

| Season | Demand (kW) | Off-Peak (kWh/yr) | On-Peak (kWh/yr) | Energy (mmBtu/yr) | Cost ($/yr) |
|---|---|---|---|---|---|
| Non-Summer | 122 | 16,556 | 28,040 | 152 | $4,074 |
| Summer | 93 | 14,869 | 20,778 | 122 | $3,293 |
| Totals | 215 | 31,425 | 48,818 | 274 | $7,367 |
| Percent Reduction | 15.0% | 15.0% | 15.0% | 15.0% | 15.0% |

**Maintenance Savings.** There are no significant maintenance savings associated with this ECO.

**Discussion.** Payback = 37.8 years

SIR = 0.4

This ECO is not recommended because the savings do not justify the cost for equipment replacement.

FT. M

BUILDING 2700 ELECTRIC MODEL - C

| HVAC Item | HVAC Airside Equipment - General Information | | | | Cooling Equipment Field Data/Reference/(Location) | Total Connected Load (kW) | Winter Demand kW/month | Int D kW |
|---|---|---|---|---|---|---|---|---|
| | Design/Site Designation | Equip. Type | Field Data/Reference/(Location) | Area Served | | | | |
| 89 | - | AHU | McQuay LSL(Auditonum M-Area) | Auditonum | McQuay AHR(Common - out on grade) | 27 0 | 6 8 | |
| 90 | - | AHU | McQuay LSL(Auditonum M-Area) | Auditonum | McQuay AHR(Common - out on grade) | 27 0 | 6 8 | |
| 107 | - | AHU | unknown(2D310 Cleanroom) | 2D310 Cleanroom | Pack. Camer Air Cooled Chiller on roof | 22 4 | 11 2 | |
| 131 | - | (2)AHU | York(MR - 33 East 3C/D200 Area) | 3D306-3C321 lab area | York Comp in MR-33 & condenser on ro | 56 4 | 14 1 | |
| 135 | - | AHU | Climatrol(MR-34 South 3C/D300 Area) | 3D330 Cleanroom | Climatrol Chiller in MR34 & cond on roo | 73 6 | 36 8 | |
| | | | | TOTALS | | 207 | 76 | |

FT. M

BUILDING 2700 ELECTRIC MODEL - C

| HVAC Item | HVAC Airside Equipment - General Information | | | | Cooling Equipment Field Data/Reference/(Location) | Total Connected Load (kW) | Winter Demand kW/month | Int D kW |
|---|---|---|---|---|---|---|---|---|
| | Design/Site Designation | Equip. Type | Field Data/Reference/(Location) | Area Served | | | | |
| 89 | - | AHU | McQuay LSL(Auditonum M-Area) | Auditonum | McQuay AHR(Common - out on grade) | 23 0 | 5 7 | |
| 90 | - | AHU | McQuay LSL(Auditonum M-Area) | Auditonum | McQuay AHR(Common - out on grade) | 23.0 | 5 7 | |
| 107 | - | AHU | unknown(2D310 Cleanroom) | 2D310 Cleanroom | Pack. Camer Air Cooled Chiller on roof | 19.1 | 9.5 | |
| 131 | - | (2)AHU | York(MR - 33 East 3C/D200 Area) | 3D306-3C321 lab area | York Comp in MR-33 & condenser on ro | 47.9 | 12 0 | |
| 135 | - | AHU | Climatrol(MR-34 South 3C/D300 Area) | 3D330 Cleanroom | Climatrol Chiller in MR34 & cond on roo | 62 6 | 31 3 | |
| | | | | TOTALS | | 176 | 64 | |



1

## FT. MONMOUTH, DEPARTMENT OF THE ARMY
## BUILDING 2700 ELECTRIC MODEL - CONVERT SPECIFIC AIR COOLED CHILLERS TO WATER COOLED CHILLE

### TABLE ECO-5-E

| al Information | | Cooling Equipment | Total | Winter | Intermed. | Summer | Winter Billing Months | | | | Intermediate Billing Months | | | | Summer Billing Months | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | |
| | Area | Field | Connected | Demand | Demand | Demand | hrs/ | | hrs/ | | hrs/ | | hrs/ | | hrs/ | | hrs/ | | Dem |
| n) | Served | Data/Reference/(Location) | Load (kW) | kW/month | kW/month | kW/month | day | kWh/Mo | day | kWh/Mo | day | kWh/Mo | day | kWh/Mo | day | kWh/Mo | day | kWh/Mo | kW/ |
| | Auditonum | McQuay AHR(Common - out on grade) | 27 0 | 6 8 | 13 5 | 20 3 | 2 | 1,621 | 4 | 2,162 | 3 | 2,432 | 6 | 3,243 | 4 | 3,243 | 8 | 4,324 | |
| | Auditonum | McQuay AHR(Common - out on grade) | 27 0 | 6 8 | 13 5 | 20 3 | 2 | 1,621 | 4 | 2,162 | 3 | 2,432 | 6 | 3,243 | 4 | 3,243 | 8 | 4,324 | |
| | 2D310 Cleanroom | Pack Camer Air Cooled Chiller on roof | 22 4 | 11 2 | 16 8 | 16 8 | 2 | 1,347 | 6 | 2,693 | 3 | 2,020 | 8 | 3,591 | 4 | 2,693 | 10 | 4,489 | |
| | 3D306-3C321 lab area | York Comp in MR-33 & condenser on ro | 56 4 | 14 1 | 28 2 | 42 3 | 1 | 1,692 | 4 | 4,513 | 2 | 3,385 | 4 | 4,513 | 4 | 6,769 | 6 | 6,769 | |
| rea) | 3D330 Cleanroom | Cimatrol Chiller in MR34 & cond on roo | 73 6 | 36 8 | 55 2 | 55 2 | 2 | 4 418 | 6 | 8,835 | 3 | 6,626 | 8 | 11,780 | 4 | 8 835 | 10 | 14,725 | |
| | TOTALS | | 207 | 76 | 127 | 155 | 9 | 10,699 | 24 | 20,365 | 14 | 16,895 | 32 | 26,370 | 20 | 24,783 | 42 | 34,631 | |

## FT. MONMOUTH, DEPARTMENT OF THE ARMY
## BUILDING 2700 ELECTRIC MODEL - CONVERT SPECIFIC AIR COOLED CHILLERS TO WATER COOLED CHILLE

### TABLE ECO-5-P

| al Information | | Cooling Equipment | Total | Winter | Intermed. | Summer | Winter Billing Months | | | | Intermediate Billing Months | | | | Summer Billing Months | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | |
| | Area | Field | Connected | Demand | Demand | Demand | hrs/ | | hrs/ | | hrs/ | | hrs/ | | hrs/ | | hrs/ | | Dem |
| n) | Served | Data/Reference/(Location) | Load (kW) | kW/month | kW/month | kW/month | day | kWh/Mo | day | kWh/Mo | day | kWh/Mo | day | kWh/Mo | day | kWh/Mo | day | kWh/Mo | kW |
| | Auditonum | McQuay AHR(Common - out on grade) | 23 0 | 5 7 | 11.5 | 17.2 | 2 | 1,378 | 4 | 1,838 | 3 | 2,067 | 6 | 2,756 | 4 | 2,756 | 8 | 3,675 | |
| | Auditonum | McQuay AHR(Common - out on grade) | 23 0 | 5 7 | 11.5 | 17.2 | 2 | 1,378 | 4 | 1,838 | 3 | 2,067 | 6 | 2,756 | 4 | 2,756 | 8 | 3,675 | |
| | 2D310 Cleanroom | Pack Camer Air Cooled Chiller on roof | 19 1 | 9 5 | 14.3 | 14 3 | 2 | 1,145 | 6 | 2,289 | 3 | 1,717 | 8 | 3,052 | 4 | 2,289 | 10 | 3,815 | |
| | 3D306-3C321 lab area | York Comp in MR-33 & condenser on ro | 47.9 | 12 0 | 24 0 | 36 0 | 1 | 1,438 | 4 | 3,836 | 2 | 2,877 | 4 | 3,836 | 4 | 5,754 | 6 | 5,754 | |
| rea) | 3D330 Cleanroom | Cimatrol Chiller in MR34 & cond on roo | 62 6 | 31 3 | 46 9 | 46 9 | 2 | 3 755 | 6 | 7,510 | 3 | 5,632 | 8 | 10 013 | 4 | 7,510 | 10 | 12,516 | |
| | TOTALS | | 176 | 64 | 108 | 132 | 9 | 9,094 | 24 | 17,310 | 14 | 14,361 | 32 | 22,414 | 20 | 21,066 | 42 | 29,436 | |

2

## RTMENT OF THE ARMY
## AIR COOLED CHILLERS TO WATER COOLED CHILLERS

ECO-5-E

| Billing Months | | | Intermediate Billing Months | | | | Summer Billing Months | | | | Non-Summer | | | | Summer | | | | Annual | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | On-Peak | | Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | | | | | | | | | | |
| Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | Demand kW/Yr. | Off-Peak KWH/Yr. | On-Peak KWH/Yr. | Cost $ | Demand kW/Yr. | Off-Peak KWH/Yr. | On-Peak KWH/Yr. | Cost $ | Cost $ | No. |
| 21 | 4 | 2,162 | 3 | 2,432 | 6 | 3,243 | 4 | 3,243 | 8 | 4,324 | 81 | 16,214 | 21,619 | $3,250 | 81 | 12,972 | 17,295 | $2,812 | $6,062 | 89 |
| 21 | 4 | 2,162 | 3 | 2,432 | 6 | 3,243 | 4 | 3,243 | 8 | 4,324 | 81 | 16,214 | 21,619 | $3,250 | 81 | 12,972 | 17,295 | $2,812 | $6,062 | 90 |
| 47 | 6 | 2,693 | 3 | 2,020 | 8 | 3,591 | 4 | 2,693 | 10 | 4,489 | 112 | 13,466 | 25,137 | $3,592 | 67 | 10,773 | 17,955 | $2,596 | $6,188 | 107 |
| 92 | 4 | 4,513 | 2 | 3,385 | 4 | 4,513 | 4 | 6,769 | 6 | 6,769 | 169 | 20,307 | 36,102 | $5,286 | 169 | 27,076 | 27,076 | $5,216 | $10,502 | 131 |
| 18 | 6 | 8,835 | 3 | 6,626 | 8 | 11,780 | 4 | 8,835 | 10 | 14,725 | 368 | 44 175 | 82 460 | $11 783 | 221 | 35,340 | 58 900 | $8 515 | $20,298 | 135 |
| 99 | 24 | 20,365 | 14 | 16,895 | 32 | 26,370 | 20 | 24,783 | 42 | 34,631 | 812 | 110,377 | 186,937 | $27,161 | 620 | 99,132 | 138,522 | $21,952 | $49,112 | |

## RTMENT OF THE ARMY
## AIR COOLED CHILLERS TO WATER COOLED CHILLERS

ECO-5-P

| Billing Months | | | Intermediate Billing Months | | | | Summer Billing Months | | | | Non-Summer | | | | Summer | | | | Annual | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | On-Peak | | Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | | | | | | | | | | |
| Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | Demand kW/Yr | Off-Peak KWH/Yr. | On-Peak KWH/Yr | Cost $ | Demand kW/Yr | Off-Peak KWH/Yr. | On-Peak KWH/Yr | Cost $ | Cost $ | No. |
| 76 | 4 | 1,838 | 3 | 2,067 | 6 | 2,756 | 4 | 2,756 | 8 | 3,675 | 69 | 13,782 | 18,376 | $2,763 | 69 | 11,026 | 14,701 | $2,390 | $5,153 | 89 |
| 78 | 4 | 1,838 | 3 | 2,067 | 6 | 2,756 | 4 | 2,756 | 8 | 3,675 | 69 | 13,782 | 18,376 | $2,763 | 69 | 11,026 | 14,701 | $2,390 | $5,153 | 90 |
| 45 | 6 | 2,289 | 3 | 1,717 | 8 | 3,052 | 4 | 2,289 | 10 | 3,815 | 95 | 11,446 | 21,366 | $3,053 | 57 | 9,157 | 15,262 | $2,206 | $5,259 | 107 |
| 38 | 4 | 3,836 | 2 | 2,877 | 4 | 3,836 | 4 | 5,754 | 6 | 5,754 | 144 | 17,261 | 30,687 | $4,493 | 144 | 23,015 | 23,015 | $4,434 | $8,927 | 131 |
| 55 | 6 | 7,510 | 3 | 5,632 | 8 | 10,013 | 4 | 7,510 | 10 | 12,516 | 313 | 37,549 | 70,091 | $10,015 | 188 | 30,039 | 50,065 | $7,238 | $17,253 | 135 |
| 94 | 24 | 17,310 | 14 | 14,361 | 32 | 22,414 | 20 | 21,066 | 42 | 29,436 | 690 | 93,821 | 158,897 | $23,087 | 527 | 84,263 | 117,744 | $18,659 | $41,745 | |

# FORT MONMOUTH
# PROJECT COST ESTIMATE
***COVERT SPECIFIC AIR COOLED CHILLERS WITH WATER COOLED CHILLERS (EC0-5)***

| NO. | DESCRIPTION | QTY | UNIT | MATERIAL | | LABOR | | TOTAL BARE COST |
|---|---|---|---|---|---|---|---|---|
| | | | | $/UNIT | COST | $/UNIT | COST | |
| 1 | Remove existing Air Cooled Chiller | 1 | Each | $2,000.00 | $2,000 | $2,000.00 | $2,000 | $4,000 |
| 2 | Install Water Cooled Chiller (#89) | 1 | Each | $15,000.00 | $15,000 | $4,000.00 | $4,000 | $19,000 |
| 3 | Piping, foundation, etc. rework | 1 | Each | $2,000.00 | $2,000 | $2,000.00 | $2,000 | $4,000 |
| 4 | Electrical wiring, connections, etc. | 1 | Each | $1,000.00 | $1,000 | $2,000.00 | $2,000 | $3,000 |
| 5 | | | | | $0 | | $0 | $0 |
| 6 | Remove existing Air Cooled Chiller | 1 | Each | $2,000.00 | $2,000 | $2,000.00 | $2,000 | $4,000 |
| 7 | Install Water Cooled Chiller (#90) | 1 | Each | $15,000.00 | $15,000 | $4,000.00 | $4,000 | $19,000 |
| 8 | Piping, foundation, etc. rework | 1 | Each | $2,000.00 | $2,000 | $2,000.00 | $2,000 | $4,000 |
| 9 | Electrical wiring, connections, etc. | 1 | Each | $1,000.00 | $1,000 | $2,000.00 | $2,000 | $3,000 |
| 10 | | | | | $0 | | $0 | $0 |
| 11 | Remove existing Air Cooled Chiller | 1 | Each | $2,000.00 | $2,000 | $2,000.00 | $2,000 | $4,000 |
| 12 | Install Water Cooled Chiller (#107) | 1 | Each | $12,000.00 | $12,000 | $3,500.00 | $3,500 | $15,500 |
| 13 | Piping, foundation, etc. rework | 1 | Each | $2,000.00 | $2,000 | $2,000.00 | $2,000 | $4,000 |
| 14 | Electrical wiring, connections, etc. | 1 | Each | $1,000.00 | $1,000 | $2,000.00 | $2,000 | $3,000 |
| 15 | | | | | $0 | | $0 | $0 |
| 16 | Remove existing Air Cooled Chiller | 1 | Each | $2,000.00 | $2,000 | $2,000.00 | $2,000 | $4,000 |
| 17 | Install Water Cooled Chiller (#131) | 1 | Each | $25,000.00 | $25,000 | $5,000.00 | $5,000 | $30,000 |
| 18 | Piping, foundation, etc. rework | 1 | Each | $2,000.00 | $2,000 | $3,000.00 | $3,000 | $5,000 |
| 19 | Electrical wiring, connections, etc. | 1 | Each | $1,500.00 | $1,500 | $2,500.00 | $2,500 | $4,000 |
| 20 | | | | | $0 | | $0 | $0 |
| 21 | Remove existing Air Cooled Chiller | 1 | Each | $2,000.00 | $2,000 | $2,000.00 | $2,000 | $4,000 |
| 22 | Install Water Cooled Chiller (#135) | 1 | Each | $35,000.00 | $35,000 | $6,000.00 | $6,000 | $41,000 |
| 23 | Piping, foundation, etc. rework | 1 | Each | $2,000.00 | $2,000 | $3,000.00 | $3,000 | $5,000 |
| 24 | Electrical wiring, connections, etc. | 1 | Each | $1,500.00 | $1,500 | $2,500.00 | $2,500 | $4,000 |
| 25 | | | | | $0 | | $0 | $0 |
| 26 | | | | | $0 | | $0 | $0 |
| 27 | | | | | $0 | | $0 | $0 |
| 28 | | | | | $0 | | $0 | $0 |
| 29 | | | | | $0 | | $0 | $0 |
| 30 | | | | | $0 | | $0 | $0 |
| 31 | | | | | $0 | | $0 | $0 |
| 32 | | | | | $0 | | $0 | $0 |
| 33 | | | | | $0 | | $0 | $0 |
| 34 | | | | | $0 | | $0 | $0 |
| 35 | | | | | $0 | | $0 | $0 |
| 36 | | | | | $0 | | $0 | $0 |
| 37 | | | | | $0 | | $0 | $0 |
| 38 | | | | | $0 | | $0 | $0 |
| 39 | | | | | $0 | | $0 | $0 |
| 40 | | | | | $0 | | $0 | $0 |
| 41 | | | | | $0 | | $0 | $0 |
| 42 | | | | | $0 | | $0 | $0 |
| 43 | | | | | $0 | | $0 | $0 |
| 44 | | | | | $0 | | $0 | $0 |
| 45 | | | | | $0 | | $0 | $0 |
| 46 | | | | | $0 | | $0 | $0 |
| 47 | | | | | $0 | | $0 | $0 |
| 48 | | | | | $0 | | $0 | $0 |
| 49 | | | | | $0 | | $0 | $0 |
| 50 | | | | | $0 | | $0 | $0 |
| 51 | | | | | $0 | | $0 | $0 |
| | SUBTOTAL | | | | | | | $183,500 |
| | OVERHEAD AND PROFIT | | | | $12,800 | | $30,500 | $43,300 |
| | CITY COST INDEX MULTIPLIER | | | | | | | |
| | DIFFICULTY FACTOR | | | | | | | |
| | CONTINGENCY | | | | $14,100 | | $8,600 | $22,700 |
| | SIOH(5.5%) & DESIGN FEE(6%) | | | 14,000 | | 15,000 | | $29,000 |
| | **BASE TOTAL COST** | | | | $154,900 | | $94,600 | $278,500 |

G:\4130.05\SS\ECOS\ECO-5CE.WK4 28-Jun-96

LIFE CYCLE COST ANALYSIS SUMMARY STUDY: MON1
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92)
INSTALLATION & LOCATION: REGION NOS. 2 CENSUS: 1
PROJECT NO. & TITLE:
FISCAL YEAR DISCRETE PORTION NAME: ECO#5
ANALYSIS DATE: 07-03-96 ECONOMIC LIFE 20 YEARS PREPARED BY:

1. INVESTMENT

| | | |
|---|---|---|
| A. CONSTRUCTION COST | $ 249500. | |
| B. SIOH | $ 14000. | |
| C. DESIGN COST | $ 15000. | |
| D. TOTAL COST (1A+1B+1C) | $ 278500. | |
| E. SALVAGE VALUE OF EXISTING EQUIPMENT | $ 0. | |
| F. PUBLIC UTILITY COMPANY REBATE | $ 0. | |
| G. TOTAL INVESTMENT (1D - 1E - 1F) | | $ 278500. |

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1995

| FUEL | UNIT COST $/MBTU(1) | SAVINGS MBTU/YR(2) | ANNUAL $ SAVINGS(3) | DISCOUNT FACTOR(4) | DISCOUNTED SAVINGS(5) |
|---|---|---|---|---|---|
| A. ELECT | $ 26.89 | 274. | $ 7368. | 13.86 | $ 102119. |
| B. DIST | $ .00 | 0. | $ 0. | 16.99 | $ 0. |
| C. RESID | $ .00 | 0. | $ 0. | 17.38 | $ 0. |
| D. NAT G | $ 7.28 | 0. | $ 0. | 17.14 | $ 0. |
| E. COAL | $ .00 | 0. | $ 0. | 13.56 | $ 0. |
| F. LPG | $ .00 | 0. | $ 0. | 15.12 | $ 0. |
| M. DEMAND SAVINGS | | | $ 0. | 13.47 | $ 0. |
| N. TOTAL | | 274. | $ 7368. | | $ 102119. |

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-) $ 0.
(1) DISCOUNT FACTOR (TABLE A) 13.47
(2) DISCOUNTED SAVING/COST (3A X 3A1) $ 0.

B. NON RECURRING SAVINGS(+) / COSTS(-)

| ITEM | SAVINGS(+) COST(-) (1) | YR OC (2) | DISCNT FACTR (3) | DISCOUNTED SAVINGS(+)/ COST(-)(4) |
|---|---|---|---|---|
| d. TOTAL | $ 0. | | | 0. |

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4) $ 0.

4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE)) $ 7368.

5. SIMPLE PAYBACK PERIOD (1G/4) 37.80 YEARS

6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) $ 102119.

7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= .37
(IF < 1 PROJECT DOES NOT QUALIFY)

## ECO-6
## FREE COOLING

**Existing.** Building 2700 utilizes a variety of cooling equipment. Included in that equipment are three (3) water cooled chillers.

The existing electric costs for these three (3) chillers are estimated to be $23,400. Refer to Table ECO-6-E for the existing analysis.

| Season | Demand (kW) | Off-Peak (kWh/yr) | On-Peak (kWh/yr) | Energy (mmBtu/yr) | Cost ($/yr) |
|---|---|---|---|---|---|
| Non-Summer | 399 | 47,863 | 87,155 | 461 | $12,609 |
| Summer | 321 | 51,433 | 63,818 | 393 | $10,806 |
| Totals | 720 | 99,296 | 150,973 | 854 | $23,415 |

**Proposed.** To install plate and frame heat exchangers in close proximity to the existing chillers utilizing tower water for free cooling during the colder seasons. For this analysis we will assume that free cooling is available during the winter months. The only system energy considered during this period will be the air handlers and the chilled water pumps. Tower, pumps, and fans will be considered to be uneffected. Pumping is constant and the impact on the towers will be insignificant.

The yearly electric costs associated with operating these systems with free cooling during the winter months is approximately $19,000. Refer to Table ECO-6-P.

| Season | Demand (kW) | Off-Peak (kWh/yr) | On-Peak (kWh/yr) | Energy (mmBtu/yr) | Cost ($/yr) |
|---|---|---|---|---|---|
| Non-Summer | 315 | 30,361 | 50,960 | 278 | $8,201 |
| Summer | 321 | 51,433 | 63,818 | 393 | $10,806 |
| Totals | 636 | 81,794 | 114,778 | 671 | $19,007 |

**Construction Cost.**

The construction costs to implement this ECO are estimated to be near $89,400. Refer to the estimate attached.

| | |
|---|---|
| Material | $47,200 |
| Labor | 33,200 |
| SIOH | 4,000 |
| Engineering | 5,000 |
| Total | $89,400 |

**Savings.**

The electric energy cost savings associated with implementing this ECO is approximately $4,400.

| Season | Demand (kW) | Off-Peak (kWh/yr) | On-Peak (kWh/yr) | Energy (mmBtu/yr) | Cost ($/yr) |
|---|---|---|---|---|---|
| Non-Summer | 84 | 17,502 | 36,195 | 183 | $4,408 |
| Summer | 0 | 0 | 0 | 0 | $0 |
| Totals | 84 | 17,502 | 36,195 | 183 | $4,408 |
| Percent Reduction | 11.7% | 17.6% | 24.0% | 21.4% | 18.8% |

**Maintenance Savings.**

There are no significant maintenance savings associated with this ECO.

**Discussion.**

Payback = 20.3 years

SIR = 0.7

This ECO is not recommended because the savings do not justify the cost for equipment replacement.

FT. MO
BUILDING

| HVAC Item | HVAC Airside Equipment - General Information | | | | Cooling Equipment | Total | Winter | Interm |
|---|---|---|---|---|---|---|---|---|
| | Design/Site Designation | Equip. Type | Field Data/Reference/(Location) | Area Served | Field Data/Reference/(Location) | Connected Load (kW) | Demand kW/month | Dema kW/m |
| 97 | AC-3 | AHU | unknown(MR - 22 North 2C/D100 Area) | 2D130 electronics lab | Compressor in MR-21 & tower on roof | 28 2 | 7 1 | |
| 106 | AC-14 | AHU | unknown(MR - 23 East 2C/D200 Area) | 2D306 lab area | Compressor in MR-23 & tower on roof | 38 7 | 19 4 | |
| 152 | AC-7 | AHU | unknown(MR - 41 South 4C/D100 Area) | 4D110 lab/offices | Compressor in MR-41 & tower on roof | 40 2 | 10 1 | |
| | | | | TOTALS | | 107 | 36 | |

FT. MC
BUILDING

| HVAC Item | HVAC Airside Equipment - General Information | | | | Cooling Equipment | Total | Winter | Interm |
|---|---|---|---|---|---|---|---|---|
| | Design/Site Designation | Equip. Type | Field Data/Reference/(Location) | Area Served | Field Data/Reference/(Location) | Connected Load (kW) | Demand kW/month | Dem kW/m |
| 97 | AC-3 | AHU | unknown(MR - 22 North 2C/D100 Area) | 2D130 electronics lab | Compressor in MR-21 & tower on roof | 28.2 | 5 0 | |
| 106 | AC-14 | AHU | unknown(MR - 23 East 2C/D200 Area) | 2D306 lab area | Compressor in MR-23 & tower on roof | 38 7 | 7.5 | |
| 152 | AC-7 | AHU | unknown(MR - 41 South 4C/D100 Area) | 4D110 lab/offices | Compressor in MR-41 & tower on roof | 40 2 | 3 0 | |
| | | | | TOTALS | | 107 | 16 | |



1

# FT. MONMOUTH, DEPARTMENT OF THE ARMY
# BUILDING 2700 ELECTRIC MODEL - FREE COOLING

## TABLE ECO-6-E

| | | | | | | Winter Billing Months | | | | Intermediate Billing Months | | | | Summer Billing Months | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mation | Cooling Equipment | Total | Winter | Intermed. | Summer | Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | | |
| Area Served | Field Data/Reference/(Location) | Connected Load (kW) | Demand kW/month | Demand kW/month | Demand kW/month | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | Demand kW/Yr. | C K |
| 2D130 electronics lab | Compressor in MR-21 & tower on roof | 28.2 | 7 1 | 14 1 | 21 2 | 1 | 846 | 4 | 2,257 | 2 | 1,693 | 4 | 2,257 | 4 | 3,386 | 6 | 3,386 | 85 | |
| 2D306 lab area | Compressor in MR-23 & tower on roof | 38 7 | 19 4 | 29 0 | 29.0 | 2 | 2,322 | 6 | 4,645 | 3 | 3,483 | 8 | 6,193 | 4 | 4,645 | 10 | 7,741 | 194 | |
| 4D110 lab/offices | Compressor in MR-41 & tower on roof | 40 2 | 10 1 | 20 1 | 30 2 | 1 | 1,207 | 4 | 3,219 | 2 | 2 414 | 4 | 3,219 | 4 | 4,828 | 6 | 4,828 | 121 | |
| TOTALS | | 107 | 36 | 63 | 80 | 4 | 4,376 | 14 | 10,120 | 7 | 7,590 | 16 | 11,668 | 12 | 12,858 | 22 | 15,954 | 399 | |

# FT. MONMOUTH, DEPARTMENT OF THE ARMY
# BUILDING 2700 ELECTRIC MODEL - FREE COOLING

## TABLE ECO-6-P

| | | | | | | Winter Billing Months | | | | Intermediate Billing Months | | | | Summer Billing Months | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mation | Cooling Equipment | Total | Winter | Intermed. | Summer | Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | Off-Peak | | On-Peak | | | |
| Area Served | Field Data/Reference/(Location) | Connected Load (kW) | Demand kW/month | Demand kW/month | Demand kW/month | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | hrs/ day | kWh/Mo | Demand kW/Yr. | C K |
| 2D130 electronics lab | Compressor in MR-21 & tower on roof | 28.2 | 5 0 | 14 1 | 21.2 | 0 | 0 | 0 5 | 282 | 2 | 1,693 | 4 | 2,257 | 4 | 3,386 | 6 | 3,386 | 76 | |
| 2D306 lab area | Compressor in MR-23 & tower on roof | 38.7 | 7.5 | 29 0 | 29.0 | 0 | 0 | 0 5 | 387 | 3 | 3,483 | 8 | 6,193 | 4 | 4,645 | 10 | 7,741 | 146 | |
| 4D110 lab/offices | Compressor in MR-41 & tower on roof | 40 2 | 3 0 | 20 1 | 30.2 | 0 | 0 | 0 5 | 402 | 2 | 2,414 | 4 | 3,219 | 4 | 4,828 | 6 | 4,828 | 92 | |
| TOTALS | | 107 | 16 | 63 | 80 | 0 | 0 | 1.5 | 1,072 | 7 | 7,590 | 16 | 11,668 | 12 | 12,858 | 22 | 15,954 | 315 | |

2

## MENT OF THE ARMY
## ODEL - FREE COOLING

**-6-E**

| Months On-Peak hrs/ day | Months On-Peak kWh/Mo | Intermediate Billing Months Off-Peak hrs/ day | Intermediate Billing Months Off-Peak kWh/Mo | Intermediate Billing Months On-Peak hrs/ day | Intermediate Billing Months On-Peak kWh/Mo | Summer Billing Months Off-Peak hrs/ day | Summer Billing Months Off-Peak kWh/Mo | Summer Billing Months On-Peak hrs/ day | Summer Billing Months On-Peak kWh/Mo | Non-Summer Demand kW/Yr. | Non-Summer Off-Peak KWH/Yr. | Non-Summer On-Peak KWH/Yr. | Non-Summer Cost $ | Summer Demand kW/Yr. | Summer Off-Peak KWH/Yr. | Summer On-Peak KWH/Yr. | Summer Cost $ | Annual Cost $ | No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 2,257 | 2 | 1,693 | 4 | 2,257 | 4 | 3,386 | 6 | 3,386 | 85 | 10,157 | 18,057 | $2,644 | 85 | 13,543 | 13,543 | $2 609 | $5,253 | 97 |
| 6 | 4,645 | 3 | 3,483 | 8 | 6,193 | 4 | 4,645 | 10 | 7,741 | 194 | 23,223 | 43,349 | $6,194 | 116 | 18,578 | 30,963 | $4 476 | $10,670 | 106 |
| 4 | 3,219 | 2 | 2 414 | 4 | 3 219 | 4 | 4,828 | 6 | 4,828 | 121 | 14 484 | 25 749 | $3 770 | 121 | 19,312 | 19 312 | $3 720 | $7 490 | 152 |
| 14 | 10,120 | 7 | 7,590 | 16 | 11,668 | 12 | 12,858 | 22 | 15,954 | 399 | 47,863 | 87,155 | $12,609 | 321 | 51,433 | 63,818 | $10,806 | $23,414 | |

## MENT OF THE ARMY
## ODEL - FREE COOLING

**-6-P**

| Months On-Peak hrs/ day | Months On-Peak kWh/Mo | Intermediate Billing Months Off-Peak hrs/ day | Intermediate Billing Months Off-Peak kWh/Mo | Intermediate Billing Months On-Peak hrs/ day | Intermediate Billing Months On-Peak kWh/Mo | Summer Billing Months Off-Peak hrs/ day | Summer Billing Months Off-Peak kWh/Mo | Summer Billing Months On-Peak hrs/ day | Summer Billing Months On-Peak kWh/Mo | Non-Summer Demand kW/Yr | Non-Summer Off-Peak KWH/Yr. | Non-Summer On-Peak KWH/Yr | Non-Summer Cost $ | Summer Demand kW/Yr | Summer Off-Peak KWH/Yr | Summer On-Peak KWH/Yr. | Summer Cost $ | Annual Cost $ | No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 5 | 282 | 2 | 1,693 | 4 | 2,257 | 4 | 3,386 | 6 | 3,386 | 76 | 6,771 | 10,157 | $1,793 | 85 | 13,543 | 13,543 | $2,609 | $4,402 | 97 |
| 0 5 | 387 | 3 | 3,483 | 8 | 6,193 | 4 | 4,645 | 10 | 7,741 | 146 | 13,934 | 26,319 | $3,988 | 116 | 18,578 | 30,963 | $4,476 | $8,465 | 106 |
| 0 5 | 402 | 2 | 2 414 | 4 | 3,219 | 4 | 4,828 | 6 | 4,828 | 92 | 9,656 | 14,484 | $2 419 | 121 | 19,312 | 19 312 | $3,720 | $6,139 | 152 |
| 1.5 | 1,072 | 7 | 7,590 | 16 | 11,668 | 12 | 12,858 | 22 | 15,954 | 315 | 30,361 | 50,960 | $8,201 | 321 | 51,433 | 63,818 | $10,806 | $19,006 | |

3

# FORT MONMOUTH
## PROJECT COST ESTIMATE
*FREE COOLING (EC0-6)*

| NO. | DESCRIPTION | QTY | UNIT | MATERIAL | | LABOR | | TOTAL BARE COST |
|---|---|---|---|---|---|---|---|---|
| | | | | $/UNIT | COST | $/UNIT | COST | |
| 1 | Install P & F Heat Exchanger (#97) | 1 | Each | $8,000.00 | $8,000 | $3,000.00 | $3,000 | $11,000 |
| 2 | Misc. Controls, Valves, etc. | 1 | Lot | $4,000.00 | $4,000 | $2,000.00 | $2,000 | $6,000 |
| 3 | Piping, foundation, etc. | 1 | Each | $1,000.00 | $1,000 | $1,500.00 | $1,500 | $2,500 |
| 4 | | | | | $0 | | $0 | $0 |
| 5 | Install P & F Heat Exchanger (#106) | 1 | Each | $8,000.00 | $8,000 | $3,000.00 | $3,000 | $11,000 |
| 6 | Misc. Controls, Valves, etc. | 1 | Lot | $4,000.00 | $4,000 | $2,000.00 | $2,000 | $6,000 |
| 7 | Piping, foundation, etc. | 1 | Each | $1,000.00 | $1,000 | $1,500.00 | $1,500 | $2,500 |
| 8 | | | | | $0 | | $0 | $0 |
| 9 | Install P & F Heat Exchanger (#152 | 1 | Each | $8,000.00 | $8,000 | $3,000.00 | $3,000 | $11,000 |
| 10 | Misc. Controls, Valves, etc. | 1 | Lot | $4,000.00 | $4,000 | $2,000.00 | $2,000 | $6,000 |
| 11 | Piping, foundation, etc. | 1 | Each | $1,000.00 | $1,000 | $1,500.00 | $1,500 | $2,500 |
| 12 | | | | | $0 | | $0 | $0 |
| 13 | | | | | $0 | | $0 | $0 |
| 14 | | | | | $0 | | $0 | $0 |
| 15 | | | | | $0 | | $0 | $0 |
| 16 | | | | | $0 | | $0 | $0 |
| 17 | | | | | $0 | | $0 | $0 |
| 18 | | | | | $0 | | $0 | $0 |
| 19 | | | | | $0 | | $0 | $0 |
| 20 | | | | | $0 | | $0 | $0 |
| 21 | | | | | $0 | | $0 | $0 |
| 22 | | | | | $0 | | $0 | $0 |
| 23 | | | | | $0 | | $0 | $0 |
| 24 | | | | | $0 | | $0 | $0 |
| 25 | | | | | $0 | | $0 | $0 |
| 26 | | | | | $0 | | $0 | $0 |
| 27 | | | | | $0 | | $0 | $0 |
| 28 | | | | | $0 | | $0 | $0 |
| 29 | | | | | $0 | | $0 | $0 |
| 30 | | | | | $0 | | $0 | $0 |
| 31 | | | | | $0 | | $0 | $0 |
| 32 | | | | | $0 | | $0 | $0 |
| 33 | | | | | $0 | | $0 | $0 |
| 34 | | | | | $0 | | $0 | $0 |
| 35 | | | | | $0 | | $0 | $0 |
| 36 | | | | | $0 | | $0 | $0 |
| 37 | | | | | $0 | | $0 | $0 |
| 38 | | | | | $0 | | $0 | $0 |
| 39 | | | | | $0 | | $0 | $0 |
| 40 | | | | | $0 | | $0 | $0 |
| 41 | | | | | $0 | | $0 | $0 |
| 42 | | | | | $0 | | $0 | $0 |
| 43 | | | | | $0 | | $0 | $0 |
| 44 | | | | | $0 | | $0 | $0 |
| 45 | | | | | $0 | | $0 | $0 |
| 46 | | | | | $0 | | $0 | $0 |
| 47 | | | | | $0 | | $0 | $0 |
| 48 | | | | | $0 | | $0 | $0 |
| 49 | | | | | $0 | | $0 | $0 |
| 50 | | | | | $0 | | $0 | $0 |
| 51 | | | | | $0 | | $0 | $0 |
| | SUBTOTAL | | | | | | | $58,500 |
| | OVERHEAD AND PROFIT | | | | $3,900 | | $10,700 | $14,600 |
| | CITY COST INDEX MULTIPLIER | | | | | | | |
| | DIFFICULTY FACTOR | | | | | | | |
| | CONTINGENCY | | | | $4,300 | | $3,000 | $7,300 |
| | SIOH(5.5%) & DESIGN FEE(6%) | | | 4,000 | | 5,000 | | $9,000 |
| | **BASE TOTAL COST** | | | | $47,200 | | $33,200 | $89,400 |

G:\4130.05\SS\ECOS\ECO-6CE.WK4 28-Jun-96

LIFE CYCLE COST ANALYSIS SUMMARY — STUDY: MON1
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) — LCCID FY95 (92)
INSTALLATION & LOCATION: REGION NOS. 2 CENSUS: 1
PROJECT NO. & TITLE:
FISCAL YEAR DISCRETE PORTION NAME: ECO#6
ANALYSIS DATE: 07-03-96 ECONOMIC LIFE 20 YEARS PREPARED BY:

1. INVESTMENT

| | | |
|---|---|---|
| A. CONSTRUCTION COST | $ | 80400. |
| B. SIOH | $ | 4000. |
| C. DESIGN COST | $ | 5000. |
| D. TOTAL COST (1A+1B+1C) | $ | 89400. |
| E. SALVAGE VALUE OF EXISTING EQUIPMENT | $ | 0. |
| F. PUBLIC UTILITY COMPANY REBATE | $ | 0. |
| G. TOTAL INVESTMENT (1D - 1E - 1F) | $ | 89400. |

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1995

| FUEL | UNIT COST $/MBTU(1) | SAVINGS MBTU/YR(2) | ANNUAL $ SAVINGS(3) | DISCOUNT FACTOR(4) | DISCOUNTED SAVINGS(5) |
|---|---|---|---|---|---|
| A. ELECT | $ 24.09 | 183. | $ 4408. | 13.86 | $ 61101. |
| B. DIST | $ .00 | 0. | $ 0. | 16.99 | $ 0. |
| C. RESID | $ .00 | 0. | $ 0. | 17.38 | $ 0. |
| D. NAT G | $ 7.28 | 0. | $ 0. | 17.14 | $ 0. |
| E. COAL | $ .00 | 0. | $ 0. | 13.56 | $ 0. |
| F. LPG | $ .00 | 0. | $ 0. | 15.12 | $ 0. |
| M. DEMAND SAVINGS | | | $ 0. | 13.47 | $ 0. |
| N. TOTAL | | 183. | $ 4408. | | $ 61101. |

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-) $ 0.
(1) DISCOUNT FACTOR (TABLE A) 13.47
(2) DISCOUNTED SAVING/COST (3A X 3A1) $ 0.

B. NON RECURRING SAVINGS(+) / COSTS(-)

| ITEM | SAVINGS(+) COST(-) (1) | YR OC (2) | DISCNT FACTR (3) | DISCOUNTED SAVINGS(+)/ COST(-)(4) |
|---|---|---|---|---|
| d. TOTAL | $ 0. | | | 0. |

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4) $ 0.

4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE)) $ 4408.

5. SIMPLE PAYBACK PERIOD (1G/4) 20.28 YEARS

6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) $ 61101.

7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= .68
(IF < 1 PROJECT DOES NOT QUALIFY)

## ECO-7
## 2-SPEED TOWER FAN OPERATION

**Existing.** Currently the MCA Chilled Water System uses a single, 4 cell - 1,380 ton cooling tower. The tower contains four single speed, 20 hp fans. The tower was installed during the 1983 renovation under the Major Construction Activities Program (MCA). The cooling system is presently operated from mid May through mid October. As indicated in Section 5, a DOE hourly simulation was performed. The annual electric energy demand and usage for the tower as calculated in DOE is 246 kW and 140,967 kWh. These quantities yield an annual energy cost of $11,600. DOE simulation output can be found in Attachment 8.12

| Component | Demand (kW) | On-Peak (kWh/yr) | Off-Peak (kWh/yr) | Energy (mmBtu/yr) | Cost ($/yr) |
|---|---|---|---|---|---|
| Tower Fan | 246 | 51,083 | 89,884 | 481 | $11,600 |
| Totals | 246 | 51,083 | 89,884 | 481 | $11,600 |

**Proposed.** Replace existing single speed motors with two speed motors and install a programmable logic controller (PLC) to control the operation of each fan. Fan operation would be adjusted by monitoring the temperature in the return line to the chillers. A DOE simulation model was performed with tower fan selection changed to "Two Speed". The summarized results are shown in the following table. A detailed two day DOE hourly report for the tower fan can be seen on the following page titled "2 Speed Tower Fan Hourly Profile".

The new fans and controls will have an annual electric demand and usage of 246 kW and 99,790 kWh. The annual energy cost for the Tower will be $9,000.

| Component | Demand (kW) | On-Peak (kWh/yr) | Off-Peak (kWh/yr) | Energy (mmBtu/yr) | Cost ($/yr) |
|---|---|---|---|---|---|
| Tower Fan | 246 | 45,475 | 54,315 | 341 | $9,000 |
| Totals | 246 | 45,475 | 54,315 | 341 | $9,000 |

**Construction Cost.** The expected construction cost is $29,700. (See Attached Cost Breakdown).

| | |
|---|---|
| Material | $ 10,800 |
| Labor | $ 15,800 |
| SIOH | $ 1,500 |
| Engineering | $ 1,600 |
| Total | $ 29,700 |

**Savings.** The annual cost savings resulting from the implementation of this project will be $2,600 ($11,600 - $9,000).

| Component | Demand (kW) | On-Peak (kWh/yr) | Off-Peak (kWh/yr) | Energy (mmBtu/yr) | Cost ($/yr) |
|---|---|---|---|---|---|
| Totals | 0 | 35,569 | 5,608 | 141 | $2,600 |
| Percent Reduction | 0.0% | 69.6% | 6.2% | 29.3% | 22.4% |

**Maintenance Savings:** There is no additional monetary savings due to reduced maintenance.

**Discussion.**

Payback = 11.4 years

SIR = 1.2

The expected payback resulting from the implementation of this project is 11.4 years ($29,700 ÷ $2,600). This ECO is not recommended. If the tower operated with a year round load, the savings would then suggest implementation.

DOE Output
Single Speed Fans vs 2 Speed Fans Hourly Profile

| Day | Time | Tower Temperature | Maximum kWh | Single Speed Fan kWh | Percent Of Full | Two Speed Fan kWh | Percent Of Full |
|---|---|---|---|---|---|---|---|
| May, 25th | 1 am | 65 | 41 | 33 | 80% | 5 | 11% |
| | 2 | 65 | 41 | 32 | 77% | 5 | 11% |
| | 3 | 65 | 41 | 32 | 78% | 5 | 11% |
| | 4 | 65 | 41 | 32 | 78% | 5 | 11% |
| | 5 | 65 | 41 | 32 | 77% | 5 | 11% |
| | 6 | 65 | 41 | 33 | 80% | 5 | 11% |
| | 7 | 65 | 41 | 37 | 89% | 11 | 26% |
| | 8 | 65 | 41 | 40 | 95% | 28 | 68% |
| | 9 | 65 | 41 | 41 | 100% | 41 | 98% |
| | 10 | 65 | 41 | 41 | 100% | 41 | 100% |
| | 11 | 66 | 41 | 41 | 100% | 41 | 100% |
| | 12 pm | 66 | 41 | 41 | 100% | 41 | 100% |
| | 1 | 69 | 41 | 41 | 100% | 41 | 100% |
| | 2 | 67 | 41 | 41 | 100% | 41 | 100% |
| | 3 | 65 | 41 | 41 | 100% | 41 | 100% |
| | 4 | 65 | 41 | 41 | 99% | 38 | 91% |
| | 5 | 65 | 41 | 41 | 98% | 36 | 87% |
| | 6 | 65 | 41 | 41 | 98% | 36 | 86% |
| | 7 | 65 | 41 | 39 | 94% | 24 | 58% |
| | 8 | 65 | 41 | 38 | 93% | 21 | 50% |
| | 9 | 65 | 41 | 37 | 89% | 10 | 25% |
| | 10 | 65 | 41 | 37 | 88% | 7 | 17% |
| | 11 | 65 | 41 | 36 | 87% | 5 | 12% |
| | 12 | 65 | 41 | 33 | 81% | 5 | 12% |
| May 26th | 1 am | 65 | 41 | 33 | 80% | 5 | 11% |
| | 2 | 65 | 41 | 33 | 80% | 5 | 11% |
| | 3 | 65 | 41 | 32 | 78% | 5 | 11% |
| | 4 | 65 | 41 | 32 | 77% | 5 | 11% |
| | 5 | 65 | 41 | 32 | 78% | 5 | 11% |
| | 6 | 65 | 41 | 36 | 88% | 7 | 16% |
| | 7 | 69 | 41 | 41 | 100% | 41 | 100% |
| | 8 | 72 | 41 | 41 | 100% | 41 | 100% |
| | 9 | 75 | 41 | 41 | 100% | 41 | 100% |
| | 10 | 76 | 41 | 41 | 100% | 41 | 100% |
| | 11 | 77 | 41 | 41 | 100% | 41 | 100% |
| | 12 pm | 78 | 41 | 41 | 100% | 41 | 100% |
| | 1 | 80 | 41 | 41 | 100% | 41 | 100% |
| | 2 | 80 | 41 | 41 | 100% | 41 | 100% |
| | 3 | 80 | 41 | 41 | 100% | 41 | 100% |
| | 4 | 79 | 41 | 41 | 100% | 41 | 100% |
| | 5 | 78 | 41 | 41 | 100% | 41 | 100% |
| | 6 | 77 | 41 | 41 | 100% | 41 | 100% |
| | 7 | 76 | 41 | 41 | 100% | 41 | 100% |
| | 8 | 76 | 41 | 41 | 100% | 40 | 97% |
| | 9 | 75 | 41 | 41 | 99% | 39 | 94% |
| | 10 | 75 | 41 | 41 | 99% | 38 | 91% |
| | 11 | 74 | 41 | 41 | 98% | 36 | 86% |
| | 12 | 74 | 41 | 40 | 97% | 34 | 81% |

2 Speed Tower Fans

***Proposed Operation, 2 Speed Tower Fan, DOE Simulation Output***

| | Chiller | | | Tower Fan | | | Condenser Pump | | | Chilled Water Pump | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Month | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | Annual kWh |
| January | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| February | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| March | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| April | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| May | 369 | 23,978 | 19,785 | 41 | 3,725 | 2,473 | 27 | 3,499 | 6,680 | | |
| June | 442 | 68,049 | 59,131 | 41 | 10,410 | 12,031 | 27 | 6,998 | 12,087 | | |
| July | 422 | 66,947 | 75,296 | 41 | 9,917 | 16,297 | 27 | 6,361 | 13,359 | | |
| August | 440 | 76,910 | 63,920 | 41 | 11,320 | 13,069 | 27 | 7,316 | 12,405 | | |
| September | 364 | 51,288 | 48,917 | 41 | 8,265 | 8,729 | 27 | 6,680 | 12,405 | | |
| October | 271 | 13,965 | 13,958 | 41 | 1,838 | 1,716 | 27 | 2,863 | 6,680 | | |
| November | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| December | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Totals | 2,308 | 301,137 | 281,007 | 246 | 45,475 | 54,315 | 162 | 33,717 | 63,616 | 493 | 278,465 |

DOE Simulation, MCA Chilled Water Plant, Existing

| Month | Chiller | | | Tower Fan | | | Condenser Pump | | | Chilled Water Pump | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Annual kW | Off-Peak kWh | On-Peak kWh | Annual kW | Off-Peak kWh | On-Peak kWh | Annual kW | Off-Peak kWh | On-Peak kWh | Annual kW | Annual kWh |
| January | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| February | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| March | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| April | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| May | 369 | 23,982 | 19,785 | 41 | 5,108 | 8,502 | 27 | 3,499 | 6,680 | | |
| June | 442 | 68,071 | 59,135 | 41 | 10,784 | 17,499 | 27 | 6,998 | 12,087 | | |
| July | 422 | 66,972 | 75,300 | 41 | 9,870 | 20,090 | 27 | 6,361 | 13,359 | | |
| August | 441 | 76,939 | 63,923 | 41 | 11,339 | 18,287 | 27 | 7,316 | 12,405 | | |
| September | 365 | 51,299 | 48,917 | 41 | 10,016 | 17,281 | 27 | 6,680 | 12,405 | | |
| October | 271 | 13,966 | 13,958 | 41 | 3,966 | 8,225 | 27 | 2,863 | 6,680 | | |
| November | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| December | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Totals | 2,310 | 301,229 | 281,018 | 246 | 51,083 | 89,884 | 162 | 33,717 | 63,616 | 493 | 278,465 |

Note: DOE does not provide monthly energy usage quantities for chilled water pumps, only annual, demand # is from Electric Model

# FORT MONMOUTH
# PROJECT COST ESTIMATE
***Two Speed Tower Fans***

| NO. | DESCRIPTION | QTY | UNIT | MATERIAL $/UNIT | MATERIAL COST | LABOR $/UNIT | LABOR COST | TOTAL BARE COST |
|---|---|---|---|---|---|---|---|---|
| 1 | Programmable Logic Controller | 1 | Each | $3,000.00 | $3,000 | $1,500.00 | $1,500 | $4,500 |
| 2 | Fan Switch | 4 | Each | $100.00 | $400 | $200.00 | $800 | $1,200 |
| 3 | Temperature Transmitter | 1 | Lot | $500.00 | $500 | $1,000.00 | $1,000 | $1,500 |
| 4 | Control Integration | 1 | Lot | $500.00 | $500 | $1,500.00 | $1,500 | $2,000 |
| 5 | Control Wiring | 1 | Lot | $500.00 | $500 | $500.00 | $500 | $1,000 |
| 6 | Two Speed Motors, 20 hp | 4 | ea | $1,000.00 | $4,000 | $1,000.00 | $4,000 | $8,000 |
| 7 | | | | | $0 | | $0 | $0 |
| 8 | | | | | $0 | | $0 | $0 |
| 9 | | | | | $0 | | $0 | $0 |
| 10 | | | | | $0 | | $0 | $0 |
| 11 | | | | | $0 | | $0 | $0 |
| 12 | | | | | $0 | | $0 | $0 |
| 13 | | | | | $0 | | $0 | $0 |
| 14 | | | | | $0 | | $0 | $0 |
| 15 | | | | | $0 | | $0 | $0 |
| 16 | | | | | $0 | | $0 | $0 |
| 17 | | | | | $0 | | $0 | $0 |
| 18 | | | | | $0 | | $0 | $0 |
| 19 | | | | | $0 | | $0 | $0 |
| 20 | | | | | $0 | | $0 | $0 |
| 21 | | | | | $0 | | $0 | $0 |
| 22 | | | | | $0 | | $0 | $0 |
| 23 | | | | | $0 | | $0 | $0 |
| 24 | | | | | $0 | | $0 | $0 |
| 25 | | | | | $0 | | $0 | $0 |
| 26 | | | | | $0 | | $0 | $0 |
| 27 | | | | | $0 | | $0 | $0 |
| 28 | | | | | $0 | | $0 | $0 |
| 29 | | | | | $0 | | $0 | $0 |
| 30 | | | | | $0 | | $0 | $0 |
| 31 | | | | | $0 | | $0 | $0 |
| 32 | | | | | $0 | | $0 | $0 |
| 33 | | | | | $0 | | $0 | $0 |
| 34 | | | | | $0 | | $0 | $0 |
| 35 | | | | | $0 | | $0 | $0 |
| 36 | | | | | $0 | | $0 | $0 |
| 37 | | | | | $0 | | $0 | $0 |
| 38 | | | | | $0 | | $0 | $0 |
| 39 | | | | | $0 | | $0 | $0 |
| 40 | | | | | $0 | | $0 | $0 |
| 41 | | | | | $0 | | $0 | $0 |
| 42 | | | | | $0 | | $0 | $0 |
| 43 | | | | | $0 | | $0 | $0 |
| 44 | | | | | $0 | | $0 | $0 |
| 45 | | | | | $0 | | $0 | $0 |
| 46 | | | | | $0 | | $0 | $0 |
| 47 | | | | | $0 | | $0 | $0 |
| 48 | | | | | $0 | | $0 | $0 |
| 49 | | | | | $0 | | $0 | $0 |
| 50 | | | | | $0 | | $0 | $0 |
| 51 | | | | | $0 | | $0 | $0 |
| 52 | | | | | $0 | | $0 | $0 |
| 53 | | | | | $0 | | $0 | $0 |
| 54 | | | | | $0 | | $0 | $0 |
| 55 | | | | | $0 | | $0 | $0 |
| 56 | | | | | $0 | | $0 | $0 |
| 57 | | | | | $0 | | $0 | $0 |
| 58 | | | | | $0 | | $0 | $0 |
| 59 | | | | | $0 | | $0 | $0 |
| 60 | | | | | $0 | | $0 | $0 |
| 61 | | | | | $0 | | $0 | $0 |
| 62 | | | | | $0 | | $0 | $0 |
| 63 | | | | | $0 | | $0 | $0 |
| | SUBTOTAL | | | | | | | $18,200 |
| | OVERHEAD AND PROFIT | | | | $900 | | $5,100 | $6,000 |
| | CITY COST INDEX MULTIPLIER | | | | | | | |
| | DIFFICULTY FACTOR | | | | | | | |
| | CONTINGENCY | | | | $1,000 | | $1,400 | $2,400 |
| | SIOH(5.5%) & DESIGN FEE(6%) | | | $1,500 | | $1,600 | | $3,100 |
| | **BASE TOTAL COST** | | | | $10,800 | | $15,800 | $29,700 |

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LIFE CYCLE COST ANALYSIS SUMMARY — STUDY: MON1

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) — LCCID FY95 (92)

INSTALLATION & LOCATION: REGION NOS. 2 CENSUS: 1
PROJECT NO. & TITLE:
FISCAL YEAR DISCRETE PORTION NAME: ECO#7
ANALYSIS DATE: 07-03-96 ECONOMIC LIFE 20 YEARS PREPARED BY:

1. INVESTMENT

| | | | | |
|---|---|---|---|---|
| A. CONSTRUCTION COST | $ 26600. | | | |
| B. SIOH | $ 1500. | | | |
| C. DESIGN COST | $ 1600. | | | |
| D. TOTAL COST (1A+1B+1C) | $ 29700. | | | |
| E. SALVAGE VALUE OF EXISTING EQUIPMENT | | $ | 0. | |
| F. PUBLIC UTILITY COMPANY REBATE | | $ | 0. | |
| G. TOTAL INVESTMENT (1D - 1E - 1F) | | | | $ 29700. |

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1995

| FUEL | UNIT COST $/MBTU(1) | SAVINGS MBTU/YR(2) | ANNUAL $ SAVINGS(3) | DISCOUNT FACTOR(4) | DISCOUNTED SAVINGS(5) |
|---|---|---|---|---|---|
| A. ELECT | $ 18.44 | 141. | $ 2600. | 13.86 | $ 36037. |
| B. DIST | $ .00 | 0. | $ 0. | 16.99 | $ 0. |
| C. RESID | $ .00 | 0. | $ 0. | 17.38 | $ 0. |
| D. NAT G | $ 7.28 | 0. | $ 0. | 17.14 | $ 0. |
| E. COAL | $ .00 | 0. | $ 0. | 13.56 | $ 0. |
| F. LPG | $ .00 | 0. | $ 0. | 15.12 | $ 0. |
| M. DEMAND SAVINGS | | | $ 0. | 13.47 | $ 0. |
| N. TOTAL | | 141. | $ 2600. | | $ 36037. |

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-) $ 0.
(1) DISCOUNT FACTOR (TABLE A) 13.47
(2) DISCOUNTED SAVING/COST (3A X 3A1) $ 0.

B. NON RECURRING SAVINGS(+) / COSTS(-)

| ITEM | SAVINGS(+) COST(-) (1) | YR OC (2) | DISCNT FACTR (3) | DISCOUNTED SAVINGS(+)/ COST(-)(4) |
|---|---|---|---|---|
| d. TOTAL | $ 0. | | | 0. |

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4) $ 0.

4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE)) $ 2600.

5. SIMPLE PAYBACK PERIOD (1G/4) 11.42 YEARS

6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) $ 36037.

7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= 1.21
(IF < 1 PROJECT DOES NOT QUALIFY)

## ECO-8
## REPLACE DHW RECIRCULATION PUMPS

| | |
|---|---|
| **Existing.** | Same existing conditions as the Base Case in ECO-1. |
| **Proposed.** | No changes. |
| **Construction Cost.** | No changes. |
| **Savings.** | No changes. |
| **Discussion.** | This ECO was not analyzed because the basis for ECO-1 assumed that the pumps that were determined to be out of service will be repaired/replaced as part of the buildings' general maintenance program. |

## ECO-9
## AUTOMATED HW TEMPERATURE RESET BASED ON OUTSIDE AIR TEMPERATURE

**Existing.** Currently several areas throughout Building 2700 receive heat from the MCA hot water system. This system is generally operated for seven (7) months out of a year. For the most part circulated water temperature is manually adjusted with the bulk of the heating season being kept at 180 °F regardless of outside conditions. Maintaining a relatively constant temperature in the fluid has caused overheating conditions throughout the building during periods of milder outside air temperature. Note: For this ECO we assumed that the controls with the new boiler installations in Building 2706 do not include temperature reset for the hot water boilers.

The existing MCA DOE model was simulated with a 4°F throttling range to simulate inadequacies in temperature control. The DOE model calculated an annual gas consumption for space heating only (no losses) at 4,979 mcf/yr. In addition, there are losses occurring through the wall of the supply and return pipe while the temperature of the fluid is maintained at 180°F. The attached calculation sheet indicates that an additional 809 mcf/yr is required to offset losses in approximately 3,500 feet of 8" pipe. The total gas usage for the MCA system (Heating, Pipe Losses) has an annual energy cost of $43,400.

| | | |
|---|---|---|
| Gas Usage (heat) | = | 4,979 mcf/yr |
| Gas Usage (loss) | = | 809 mcf/yr |
| Total Gas Usage | = | 5,788 mcf/yr (4,979 mcf/yr + 809 mcf/yr) |
| Gas Energy | = | 5,962 mmBtu/yr (5,788 mcf/yr x 1.031 mmBtu/mcf) |
| Gas Cost | = | $43,400 (5,788 mcf/yr x $7.50/mcf = $43,410, use $43,400) |

**Proposed.**

Install outside air temperature sensor and controller to allow the boiler water supply temperature to be reset. The new controls would allow the temperature of the fluid to reach 180°F when the outside air temperature is 0°F and adjust on a linear curve to a temperature of 130°F at 60°F. The control would reduce overheating in spaces and losses in the pipe due to lower fluid temperatures. The DOE model was revised and recalculated with the throttling range lowered to 2°F. In addition, the pipe losses were recalculated at an average fluid temperature of 160°F. The annual gas usage for the MCA system (heat and losses) would be lowered to 5,447 with an annual cost of $40,900.

| | | |
|---|---|---|
| Gas Usage (heat) | = | 4,785 mcf/yr |
| Gas Usage (loss) | = | 662 mcf/yr |
| Total Gas Usage | = | 5,447 mcf/yr (4,785 mcf/yr + 662 mcf/yr) |
| Gas Energy | = | 5,610 mmBtu/yr (5,447 mcf/yr x 1.031 mmBtu/mcf) |
| Gas Cost | = | $40,900 (5,447 mcf/yr x $7.50/mcf = $40,853, use $40,900) |

**Construction Cost.**

The expected construction cost for this ECO is $14,000. (Reference attached cost estimate).

| | |
|---|---|
| Material | $ 7,300 |
| Labor | $ 5,200 |
| SIOH | $ 700 |
| Engineering | $ 800 |
| Total | $ 14,000 |

| | |
|---|---|
| **Savings.** | The annual cost savings resulting from the implementation of this project will be $2,500 ($43,400 - $40,900). |

Gas Usage = 341 mcf/yr (5,788 mcf/yr - 5,447 mcf/yr)

Energy Usage = 351 mmBtu [341 mcf/yr x 1,030,000 Btu/mcf) ÷ 1,000,000 Btu/mmBtu]

**Maintenance Savings.** There is no additional monetary savings due to reduced maintenance.

**Discussion.** Payback = 5.6 years

SIR = 3.1

The payback for this ECO is 5.6 years. It is possible that the new boilers have this feature, or at least the feature on the boiler to vary the outlet temperature. For the cost estimate, we have assumed that the installation does not include these features.

We recommend that this ECO be adopted for energy savings and better temperature control.

Estimated Energy Loss for Supply/Return Piping, MCA Heating System

Existing: 3,500 ft of supply and return piping with an average size of 8" and 2" insulation

U Factor = 0.15 Btu/sf/°F
Pipe Area = 3,500 ft x 2.26 ft (circ of 8") = 7,910 sf
Average Fluid Temperature = 180°F
Average Surrounding Air Temperature = 70°F

Energy Loss (Q) = U x A x Delta T
Q = 0.15 Btuh/sf/°F x 7,910 sf x (180°F - 70°F)
Q = 130,515 Btuh

Annual Energy Loss = Btuh x 8,760 hrs/yr x 7 mo/12 mo/1,030,000 Btu/mcf/eff
Loss = 130,515 Btuh x 8,760 hrs/yr x 7 mo/12 mo/1,030,000 Btu/mcf/.80
Loss = 809 mcf/yr
Cost = $6,100 (809 mcf/yr x $7.50/mcf)

Proposed: 3,500 ft of supply and return piping with an average size of 8" and 2" insulation

U Factor = 0.15 Btu/sf/°F
Pipe Area = 3,500 ft x 2.26 ft (circ of 8") = 7,910 sf
Average Fluid Temperature = 160°F
Average Surrounding Air Temperature = 70°F

Energy Loss (Q) = U x A x Delta T
Q = 0.15 Btuh/sf/°F x 7,910 sf x (160°F - 70°F)
Q = 106,785 Btuh

Annual Energy Loss = Btuh x 8,760 hrs/yr x 7 mo/12 mo/1,030,000 Btu/mcf/eff
Loss = 106,785 Btuh x 8,760 hrs/yr x 7 mo/12 mo/1,030,000 Btu/mcf/.80
Loss = 662 mcf/yr
Cost = $5,000 (662 mcf/yr x $7.50/mcf)

# FORT MONMOUTH
# PROJECT COST ESTIMATE
***Automated HW Temperature Reset***

| NO. | DESCRIPTION | QTY | UNIT | MATERIAL | | LABOR | | TOTAL BARE COST |
|---|---|---|---|---|---|---|---|---|
| | | | | $/UNIT | COST | $/UNIT | COST | |
| 1 | Boiler Reset Controller | 1 | Each | $5,000.00 | $5,000 | $1,500.00 | $1,500 | $6,500 |
| 2 | Outdoor Sensor w/thermowell | 1 | Each | $500.00 | $500 | $1,000.00 | $1,000 | $1,500 |
| 3 | Electric, Wiring, etc. | 1 | Lot | $500.00 | $500 | $500.00 | $500 | $1,000 |
| 4 | | | | | $0 | | $0 | $0 |
| 5 | | | | | $0 | | $0 | $0 |
| 6 | | | | | $0 | | $0 | $0 |
| 7 | | | | | $0 | | $0 | $0 |
| 8 | | | | | $0 | | $0 | $0 |
| 9 | | | | | $0 | | $0 | $0 |
| 10 | | | | | $0 | | $0 | $0 |
| 11 | | | | | $0 | | $0 | $0 |
| 12 | | | | | $0 | | $0 | $0 |
| 13 | | | | | $0 | | $0 | $0 |
| 14 | | | | | $0 | | $0 | $0 |
| 15 | | | | | $0 | | $0 | $0 |
| 16 | | | | | $0 | | $0 | $0 |
| 17 | | | | | $0 | | $0 | $0 |
| 18 | | | | | $0 | | $0 | $0 |
| 19 | | | | | $0 | | $0 | $0 |
| 20 | | | | | $0 | | $0 | $0 |
| 21 | | | | | $0 | | $0 | $0 |
| 22 | | | | | $0 | | $0 | $0 |
| 23 | | | | | $0 | | $0 | $0 |
| 24 | | | | | $0 | | $0 | $0 |
| 25 | | | | | $0 | | $0 | $0 |
| 26 | | | | | $0 | | $0 | $0 |
| 27 | | | | | $0 | | $0 | $0 |
| 28 | | | | | $0 | | $0 | $0 |
| 29 | | | | | $0 | | $0 | $0 |
| 30 | | | | | $0 | | $0 | $0 |
| 31 | | | | | $0 | | $0 | $0 |
| 32 | | | | | $0 | | $0 | $0 |
| 33 | | | | | $0 | | $0 | $0 |
| 34 | | | | | $0 | | $0 | $0 |
| 35 | | | | | $0 | | $0 | $0 |
| 36 | | | | | $0 | | $0 | $0 |
| 37 | | | | | $0 | | $0 | $0 |
| 38 | | | | | $0 | | $0 | $0 |
| 39 | | | | | $0 | | $0 | $0 |
| 40 | | | | | $0 | | $0 | $0 |
| 41 | | | | | $0 | | $0 | $0 |
| 42 | | | | | $0 | | $0 | $0 |
| 43 | | | | | $0 | | $0 | $0 |
| 44 | | | | | $0 | | $0 | $0 |
| 45 | | | | | $0 | | $0 | $0 |
| 46 | | | | | $0 | | $0 | $0 |
| 47 | | | | | $0 | | $0 | $0 |
| 48 | | | | | $0 | | $0 | $0 |
| 49 | | | | | $0 | | $0 | $0 |
| 50 | | | | | $0 | | $0 | $0 |
| 51 | | | | | $0 | | $0 | $0 |
| 52 | | | | | $0 | | $0 | $0 |
| 53 | | | | | $0 | | $0 | $0 |
| 54 | | | | | $0 | | $0 | $0 |
| 55 | | | | | $0 | | $0 | $0 |
| 56 | | | | | $0 | | $0 | $0 |
| 57 | | | | | $0 | | $0 | $0 |
| 58 | | | | | $0 | | $0 | $0 |
| 59 | | | | | $0 | | $0 | $0 |
| 60 | | | | | $0 | | $0 | $0 |
| 61 | | | | | $0 | | $0 | $0 |
| 62 | | | | | $0 | | $0 | $0 |
| 63 | | | | | $0 | | $0 | $0 |
| | SUBTOTAL | | | | | | | $9,000 |
| | OVERHEAD AND PROFIT | | | | $600 | | $1,700 | $2,300 |
| | CITY COST INDEX MULTIPLIER | | | | | | | |
| | DIFFICULTY FACTOR | | | | | | | |
| | CONTINGENCY | | | | $700 | | $500 | $1,200 |
| | SIOH(5.5%) & DESIGN FEE(6%) | | | $700 | | $800 | | $1,500 |
| | **BASE TOTAL COST** | | | | **$7,300** | | **$5,200** | **$14,000** |

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LIFE CYCLE COST ANALYSIS SUMMARY STUDY: MON1
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92)
INSTALLATION & LOCATION: REGION NOS. 2 CENSUS: 1
PROJECT NO. & TITLE:
FISCAL YEAR DISCRETE PORTION NAME: ECO#9
ANALYSIS DATE: 07-03-96 ECONOMIC LIFE 20 YEARS PREPARED BY:

1. INVESTMENT

| | | | | |
|---|---|---|---|---|
| A. CONSTRUCTION COST | $ 12500. | | | |
| B. SIOH | $ 700. | | | |
| C. DESIGN COST | $ 800. | | | |
| D. TOTAL COST (1A+1B+1C) | $ 14000. | | | |
| E. SALVAGE VALUE OF EXISTING EQUIPMENT | | $ | 0. | |
| F. PUBLIC UTILITY COMPANY REBATE | | $ | 0. | |
| G. TOTAL INVESTMENT (1D - 1E - 1F) | | | | $ 14000. |

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1995

| FUEL | UNIT COST $/MBTU(1) | SAVINGS MBTU/YR(2) | ANNUAL $ SAVINGS(3) | DISCOUNT FACTOR(4) | DISCOUNTED SAVINGS(5) |
|---|---|---|---|---|---|
| A. ELECT | $ 86.19 | 0. | $ 0. | 13.86 | $ 0. |
| B. DIST | $ .00 | 0. | $ 0. | 16.99 | $ 0. |
| C. RESID | $ .00 | 0. | $ 0. | 17.38 | $ 0. |
| D. NAT G | $ 7.28 | 351. | $ 2555. | 17.14 | $ 43798. |
| E. COAL | $ .00 | 0. | $ 0. | 13.56 | $ 0. |
| F. LPG | $ .00 | 0. | $ 0. | 15.12 | $ 0. |
| M. DEMAND SAVINGS | | | $ 0. | 13.47 | $ 0. |
| N. TOTAL | | 351. | $ 2555. | | $ 43798. |

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-) $ 0.
(1) DISCOUNT FACTOR (TABLE A) 13.47
(2) DISCOUNTED SAVING/COST (3A X 3A1) $ 0.

B. NON RECURRING SAVINGS(+) / COSTS(-)

| ITEM | SAVINGS(+) COST(-) (1) | YR OC (2) | DISCNT FACTR (3) | DISCOUNTED SAVINGS(+)/ COST(-)(4) |
|---|---|---|---|---|
| d. TOTAL | $ 0. | | | 0. |

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4) $ 0.

4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE)) $ 2555.

5. SIMPLE PAYBACK PERIOD (1G/4) 5.48 YEARS

6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) $ 43798.

7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= 3.13
(IF < 1 PROJECT DOES NOT QUALIFY)

## ECO-10
## FULL CHILLED WATER STORAGE

**Existing.** Currently Building 2700 utilizes a central chilled water system for a portion of its cooling needs. This system was installed during the 1983 renovation under the Major Construction Activities Program (MCA). This system has been referred to as "MCA Chilled Water Plant". As shown in Section 3 of this report the current system consists of the following equipment:

| Description | Quantity, Size, Load |
|---|---|
| Centrifugal Chillers | 2 - 690 tons - 538 kW/ea |
| Cooling Tower | 1 - 1,380 Tons - 56 kW |
| Condenser Pumps | 2 - 19 kW/ea |
| Chilled Water Pumps | 2 - 75 kW/ea |

The system is presently operated from mid May through mid October. As indicated in Section 5, a DOE hourly simulation was performed. DOE calculated a peak cooling load of 608 tons at 2:00 p.m. on August 18th. In addition, the highest total cooling load for the 12 hour on-peak period also occurred on August 18th. The following table shows the 24 hour profile for the peak day. The following table of on-peak cooling demands for the chilled water storage results in a total of 6,103 ton/hr. DOE simulation output for this ECO can be found in Attachment 8.12

Peak Cooling Day Profile

| Hour | Load (Tons) | Hour | Load (Tons) |
|---|---|---|---|
| 1 AM | 211 | 1 | 590 |
| 2 | 195 | 2 | 607 |
| 3 | 186 | 3 | 579 |
| 4 | 172 | 4 | 495 |
| 5 | 156 | 5 | 473 |
| 6 | 231 | 6 | 430 |
| 7 | 361 | 7 | 382 |
| 8 | 438 | 8 | 354 |
| 9 | 484 | 9 | 336 |
| 10 | 518 | 10 | 318 |
| 11 | 550 | 11 | 301 |
| 12 PM | 557 | 12 AM | 284 |

The annual energy cost for the MCA chilled water system cooling system as based on DOE simulation results is $103,200. Individual components are summarized below and shown in detail on the attached table titled "Existing Operation".

| Component | Demand kW | On-Peak kWh/yr | Off-Peak kWh/yr | Energy mmBtu | Cost $/yr |
|---|---|---|---|---|---|
| Chillers | 2,310 | 301,229 | 281,018 | 1,987 | $60,700 |
| Tower Fan | 246 | 51,083 | 89,884 | 481 | $11,600 |
| Condenser Pump | 162 | 33,716 | 63,615 | 332 | $7,900 |
| Chilled Water Pump | 493 | 92,417 | 186,048 | 950 | $22,900 |
| Totals | 3,211 | 478,445 | 620,565 | 3,751 | $103,100 |

DOE Simulation, MCA Chilled Water Plant, Existing

| Month | Chiller | | | Tower Fan | | | Condenser Pump | | | Chilled Water Pump | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Annual kW | Off-Peak kWh | On-Peak kWh | Annual kW | Off-Peak kWh | On-Peak kWh | Annual kW | Off-Peak kWh | On-Peak kWh | Annual kW | Annual kWh |
| January | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| February | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| March | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| April | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| May | 369 | 23,982 | 19,785 | 41 | 5,108 | 8,502 | 27 | 3,499 | 6,680 | | |
| June | 442 | 68,071 | 59,135 | 41 | 10,784 | 17,499 | 27 | 6,998 | 12,087 | | |
| July | 422 | 66,972 | 75,300 | 41 | 9,870 | 20,090 | 27 | 6,361 | 13,359 | | |
| August | 441 | 76,939 | 63,923 | 41 | 11,339 | 18,287 | 27 | 7,316 | 12,405 | | |
| September | 365 | 51,299 | 48,917 | 41 | 10,016 | 17,281 | 27 | 6,680 | 12,405 | | |
| October | 271 | 13,966 | 13,958 | 41 | 3,966 | 8,225 | 27 | 2,863 | 6,680 | | |
| November | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| December | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Totals | 2,310 | 301,229 | 281,018 | 246 | 51,083 | 89,884 | 162 | 33,717 | 63,616 | 493 | 278,465 |

Note: DOE does not provide monthly energy usage quantities for chilled water pumps, only annual, demand # is from Electric Model

**Proposed.** Utilize both existing 690 ton chillers to produce and store chilled water during utility off-peak periods when the cost for electricity is lower. Install equipment to store 6,200 ton-hour of chilled water for use during on-peak periods (Table above adds to 6,103 ton/hrs). This amount of storage is equivalent to approximately 750,000 gallons of chilled water storage.

During the on-peak period (8:00 a.m. to 8:00 p.m.), the stored chilled water will be utilized to meet 100% of the cooling load. The existing chiller, tower, and condenser pump chiller will not operate during the on-peak period. The operation of the chilled water pump will remain unchanged. During the off-peak (8:00 pm to 8:00 am) the 690 ton chiller will operate to meet both the building cooling load and chilled water tank charging. The storage system will be used from June to October during the summer electric rate period.

For this analysis, 100% storage was assumed. Therefore, the storage was sized so that during the on-peak period 100% of the cooling will be provided by the stored chilled water. On cooler days, a portion of the stored chilled water may be used to satisfy loads during the off-peak period. Use of the chilled water storage system will reduce demand charges. Generating cooling at night also takes advantages of the lower off-peak cost of energy (kWh). A DOE simulation model was performed based upon the above parameters with summarized results shown on the following table. With the new chilled water storage system the on-peak kWh will be shifted to off-peak hours. The table on the following page titles "Full Chilled Water Storage Hourly Profile" demonstrates the operation of the new system.

The new storage system will be buried on the grounds adjacent to the chilled water building. The existing chiller will be retained and will not require modifications. New piping and controls will need to be added. The annual energy cost for the MCA system will be $67,000.

| Component | Demand kW | On-Peak kWh/yr | Off-Peak kWh/yr | Energy mmBtu | Cost $/yr |
|---|---|---|---|---|---|
| Chillers | 0 | 0 | 534,529 | 1,824 | $33,700 |
| Tower Fan | 0 | 0 | 111,018 | 379 | $7,000 |
| Condenser Pump | 0 | 0 | 51,784 | 177 | $3,300 |
| Chilled Water Pump | 493 | 92,417 | 186,048 | 950 | $22,900 |
| Totals | 493 | 92,417 | 883,379 | 3,330 | $66,900 |

**Construction Cost.** The expected construction cost is $892,000, use $890,000. Based on experience for this type of energy storage, the average construction cost to implement is $130 ton/hr. If the related payback is attractive we would then proceed with a more detailed estimate.

| | |
|---|---|
| Material | $ 500,000 |
| Labor | $ 300,000 |
| SIOH | $ 44,000 |
| Engineering | $ 48,000 |
| Total | $ 892,000 |

**Savings.** The annual cost savings resulting from the implementation of this project will be $36,200 ($103,100 - $66,900).

Demand kW = 2,718 kW/yr (3,211 kW/yr - 493 kW/yr)

On-Peak kWh = 386,028 kWh/yr (486,275 kWh/yr - 100,247 kWh/yr)

Off-Peak kWh = -262,814 kWh/yr (612,735 kWh/yr - 875,549 kWh)

Energy Usage = 420 mmBtu (((386,028 kWh/yr - 262,814 kWh/yr) x 3,413 Btu/kWh) ÷ 1,000,000 Btu/mmBtu]

| Component | Demand kW | On-Peak kWh/yr | Off-Peak kWh/yr | Energy mmBtu | Cost $/yr |
|---|---|---|---|---|---|
| Chillers | 2,310 | 301,229 | (253,511) | 163 | $27,000 |
| Tower Fan | 246 | 51,083 | (21,134) | 102 | $4,600 |
| Condenser Pump | 162 | 33,716 | 11,831 | 155 | $4,600 |
| Chilled Water Pump | 0 | 0 | 0 | 0 | $0 |
| Totals | 2,718 | 386,028 | (262,814) | 421 | $36,200 |

**Maintenance Savings.** There is no additional monetary savings due to reduced maintenance. In reality the maintenance costs would probably go up to some degree. For analysis purposes we have assumed no impact.

**Discussion.** Payback = 24.6 years

SIR = 0.6

The expected payback resulting from the implementation of this project is 24.6 years ($890,000 ÷ $36,200). This ECO is not recommended because the savings do not justify the cost for equipment replacement.

DOE Output
Full Chilled Water Storage Hourly Profile

| Day | Time | Building Load Tons | Chiller Load Tons | Tank Release Tons | Tank Charge Tons | Losses Tons |
|---|---|---|---|---|---|---|
| Aug 17th | 1 am | 184 | 717 | 0 | 508 | 25 |
| | 2 | 161 | 695 | 0 | 508 | 25 |
| | 3 | 152 | 685 | 0 | 508 | 25 |
| | 4 | 138 | 672 | 0 | 508 | 25 |
| | 5 | 133 | 666 | 0 | 508 | 25 |
| | 6 | 201 | 501 | 0 | 275 | 25 |
| | 7 | 340 | 365 | 0 | 0 | 25 |
| | 8 | 410 | 0 | 435 | 0 | 25 |
| | 9 | 457 | 0 | 482 | 0 | 25 |
| | 10 | 475 | 0 | 500 | 0 | 25 |
| | 11 | 508 | 0 | 534 | 0 | 25 |
| | 12 pm | 530 | 0 | 555 | 0 | 25 |
| | 1 | 538 | 0 | 564 | 0 | 25 |
| | 2 | 538 | 0 | 563 | 0 | 25 |
| | 3 | 507 | 0 | 532 | 0 | 25 |
| | 4 | 427 | 0 | 453 | 0 | 25 |
| | 5 | 410 | 0 | 435 | 0 | 25 |
| | 6 | 374 | 0 | 400 | 0 | 25 |
| | 7 | 299 | 0 | 324 | 0 | 25 |
| | 8 | 276 | 810 | 0 | 508 | 25 |
| | 9 | 251 | 785 | 0 | 508 | 25 |
| | 10 | 228 | 762 | 0 | 508 | 25 |
| | 11 | 212 | 746 | 0 | 508 | 25 |
| | 12 | 197 | 731 | 0 | 508 | 25 |
| Aug 18th | 1 am | 186 | 720 | 0 | 508 | 25 |
| | 2 | 169 | 703 | 0 | 508 | 25 |
| | 3 | 161 | 695 | 0 | 508 | 25 |
| | 4 | 147 | 680 | 0 | 508 | 25 |
| | 5 | 131 | 665 | 0 | 508 | 25 |
| | 6 | 206 | 739 | 0 | 508 | 25 |
| | 7 | 336 | 549 | 0 | 188 | 25 |
| | 8 | 413 | 0 | 438 | 0 | 25 |
| | 9 | 459 | 0 | 484 | 0 | 25 |
| | 10 | 493 | 0 | 518 | 0 | 25 |
| | 11 | 525 | 0 | 550 | 0 | 25 |
| | 12 pm | 531 | 0 | 557 | 0 | 25 |
| | 1 | 565 | 0 | 590 | 0 | 25 |
| | 2 | 582 | 0 | 607 | 0 | 25 |
| | 3 | 554 | 0 | 579 | 0 | 25 |
| | 4 | 470 | 0 | 495 | 0 | 25 |
| | 5 | 448 | 0 | 473 | 0 | 25 |
| | 6 | 405 | 0 | 430 | 0 | 25 |
| | 7 | 357 | 0 | 377 | 0 | 21 |
| | 8 | 329 | 823 | 0 | 464 | 30 |
| | 9 | 311 | 825 | 0 | 489 | 25 |
| | 10 | 293 | 825 | 0 | 507 | 25 |
| | 11 | 276 | 810 | 0 | 508 | 25 |
| | 12 | 259 | 793 | 0 | 508 | 25 |

Full Chilled Water Storage

***Proposed Operation, Full Chilled Water Storage2, DOE Simulation Output***

| Month | Chiller | | | Tower Fan | | | Condenser Pump | | | Chilled Water Pump | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | Annual kWh |
| January | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| February | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| March | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| April | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| May | 0 | 0 | 39,911 | 0 | 0 | 9,852 | 0 | 0 | 5,415 | | |
| June | 0 | 0 | 117,067 | 0 | 0 | 23,119 | 0 | 0 | 10,154 | | |
| July | 0 | 0 | 137,542 | 0 | 0 | 25,544 | 0 | 0 | 10,492 | | |
| August | 0 | 0 | 131,810 | 0 | 0 | 24,806 | 0 | 0 | 10,492 | | |
| September | 0 | 0 | 87,862 | 0 | 0 | 20,391 | 0 | 0 | 10,154 | | |
| October | 0 | 0 | 20,337 | 0 | 0 | 7,306 | 0 | 0 | 5,077 | | |
| November | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| December | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Totals | 0 | 0 | 534,529 | 0 | 0 | 111,018 | 0 | 0 | 51,784 | 493 | 278,465 |

LIFE CYCLE COST ANALYSIS SUMMARY — STUDY: MON1
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) — LCCID FY95 (92)

INSTALLATION & LOCATION: REGION NOS. 2 CENSUS: 1
PROJECT NO. & TITLE:
FISCAL YEAR DISCRETE PORTION NAME: ECO#10
ANALYSIS DATE: 07-03-96 ECONOMIC LIFE 20 YEARS PREPARED BY:

1. INVESTMENT

| | | |
|---|---|---|
| A. CONSTRUCTION COST | $ 800000. | |
| B. SIOH | $ 44000. | |
| C. DESIGN COST | $ 48000. | |
| D. TOTAL COST (1A+1B+1C) | $ 892000. | |
| E. SALVAGE VALUE OF EXISTING EQUIPMENT | $ 0. | |
| F. PUBLIC UTILITY COMPANY REBATE | $ 0. | |
| G. TOTAL INVESTMENT (1D - 1E - 1F) | | $ 892000. |

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1995

| FUEL | UNIT COST $/MBTU(1) | SAVINGS MBTU/YR(2) | ANNUAL $ SAVINGS(3) | DISCOUNT FACTOR(4) | DISCOUNTED SAVINGS(5) |
|---|---|---|---|---|---|
| A. ELECT | $ 86.19 | 420. | $ 36200. | 13.86 | $ 501729. |
| B. DIST | $ .00 | 0. | $ 0. | 16.99 | $ 0. |
| C. RESID | $ .00 | 0. | $ 0. | 17.38 | $ 0. |
| D. NAT G | $ 7.28 | 0. | $ 0. | 17.14 | $ 0. |
| E. COAL | $ .00 | 0. | $ 0. | 13.56 | $ 0. |
| F. LPG | $ .00 | 0. | $ 0. | 15.12 | $ 0. |
| M. DEMAND SAVINGS | | | $ 0. | 13.47 | $ 0. |
| N. TOTAL | | 420. | $ 36200. | | $ 501729. |

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-) $ 0.
(1) DISCOUNT FACTOR (TABLE A) 13.47
(2) DISCOUNTED SAVING/COST (3A X 3A1) $ 0.

B. NON RECURRING SAVINGS(+) / COSTS(-)

| ITEM | SAVINGS(+) COST(-) (1) | YR OC (2) | DISCNT FACTR (3) | DISCOUNTED SAVINGS(+)/ COST(-)(4) |
|---|---|---|---|---|
| d. TOTAL | $ 0. | | | 0. |

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4) $ 0.

4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE)) $ 36200.

5. SIMPLE PAYBACK PERIOD (1G/4) 24.64 YEARS

6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) $ 501729.

7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= .56
(IF < 1 PROJECT DOES NOT QUALIFY)

# FORT MONMOUTH
# PROJECT COST ESTIMATE
*FULL CHILLED WATER STORAGE (EC0-10)*

| NO. | DESCRIPTION | QTY | UNIT | MATERIAL | | LABOR | | TOTAL BARE COST |
|---|---|---|---|---|---|---|---|---|
| | | | | $/UNIT | COST | $/UNIT | COST | |
| 1 | Storage Tank 750,000 Gallons | 1 | Each | $250,000.00 | $265,000 | $80,000.00 | $80,000 | $345,000 |
| 2 | Storage Tank Diffuser | 1 | Each | $35,000.00 | $35,000 | $4,000.00 | $4,000 | $39,000 |
| 3 | Excavation abd Backfill | 1 | Lot | $10,000.00 | $10,000 | $30,000.00 | $30,000 | $40,000 |
| 4 | Insulation | 1 | Lot | $30,000.00 | $30,000 | $10,000.00 | $10,000 | $40,000 |
| 5 | Piping 12" | 750 | Each | $58.00 | $43,500 | $49.00 | $36,750 | $80,250 |
| 6 | Control Valve | 2 | Each | $5,000.00 | $10,000 | $1,500.00 | $3,000 | $13,000 |
| 7 | Controls | 1 | Lot | $10,000.00 | $10,000 | $10,000.00 | $10,000 | $20,000 |
| 8 | Pump, 50 HP | 2 | Each | $4,900.00 | $9,800 | $1,100.00 | $2,200 | $12,000 |
| 9 | | | | | $0 | | $0 | $0 |
| 10 | | | | | $0 | | $0 | $0 |
| 11 | | | | | $0 | | $0 | $0 |
| 12 | | | | | $0 | | $0 | $0 |
| 13 | | | | | $0 | | $0 | $0 |
| 14 | | | | | $0 | | $0 | $0 |
| 15 | | | | | $0 | | $0 | $0 |
| 16 | | | | | $0 | | $0 | $0 |
| 17 | | | | | $0 | | $0 | $0 |
| 18 | | | | | $0 | | $0 | $0 |
| 19 | | | | | $0 | | $0 | $0 |
| 20 | | | | | $0 | | $0 | $0 |
| 21 | | | | | $0 | | $0 | $0 |
| 22 | | | | | $0 | | $0 | $0 |
| 23 | | | | | $0 | | $0 | $0 |
| 24 | | | | | $0 | | $0 | $0 |
| 25 | | | | | $0 | | $0 | $0 |
| 26 | | | | | $0 | | $0 | $0 |
| 27 | | | | | $0 | | $0 | $0 |
| 28 | | | | | $0 | | $0 | $0 |
| 29 | | | | | $0 | | $0 | $0 |
| 30 | | | | | $0 | | $0 | $0 |
| 31 | | | | | $0 | | $0 | $0 |
| 32 | | | | | $0 | | $0 | $0 |
| 33 | | | | | $0 | | $0 | $0 |
| 34 | | | | | $0 | | $0 | $0 |
| 35 | | | | | $0 | | $0 | $0 |
| 36 | | | | | $0 | | $0 | $0 |
| 37 | | | | | $0 | | $0 | $0 |
| 38 | | | | | $0 | | $0 | $0 |
| 39 | | | | | $0 | | $0 | $0 |
| 40 | | | | | $0 | | $0 | $0 |
| 41 | | | | | $0 | | $0 | $0 |
| 42 | | | | | $0 | | $0 | $0 |
| 43 | | | | | $0 | | $0 | $0 |
| 44 | | | | | $0 | | $0 | $0 |
| 45 | | | | | $0 | | $0 | $0 |
| 46 | | | | | $0 | | $0 | $0 |
| 47 | | | | | $0 | | $0 | $0 |
| 48 | | | | | $0 | | $0 | $0 |
| 49 | | | | | $0 | | $0 | $0 |
| 50 | | | | | $0 | | $0 | $0 |
| 51 | | | | | $0 | | $0 | $0 |
| | SUBTOTAL | | | | | | | $589,300 |
| | OVERHEAD AND PROFIT | | | | $41,300 | | $96,800 | $138,100 |
| | CITY COST INDEX MULTIPLIER | | | | | | | |
| | DIFFICULTY FACTOR | | | | | | | |
| | CONTINGENCY | | | | $45,500 | | $27,300 | $72,800 |
| | SIOH(5.5%) & DESIGN FEE(6%) | | | 44,000 | | 48,000 | | $92,000 |
| | **BASE TOTAL COST** | | | | **$500,000** | | **$300,000** | **$892,000** |

G:\4130.05\SS\ECOS\ECO-10CE.WK4

12-Jul-96

## ECO-11
## PARTIAL CHILLED WATER STORAGE

**Existing.** Currently Building 2700 utilizes a central chilled water system for a portion of its cooling needs. This system was installed during the 1983 renovation under the Major Construction Activities Program (MCA). This system has been referred to as "MCA Chilled Water Plant". As shown in Section 3 of this report the current system consists of the following equipment:

| Description | Quantity, Size, Load |
|---|---|
| Centrifugal Chillers | 2 - 690 tons - 538 kW/ea |
| Cooling Tower | 1 - 1,380 Tons - 56 kW |
| Condenser Pumps | 2 - 19 kW/ea |
| Chilled Water Pumps | 2 - 75 kW/ea |

The system is presently operated from mid May through mid October. As indicated in Section 5, a DOE hourly simulation was performed. DOE calculated a peak cooling load of 608 tons at 2:00 p.m. on August 18th. In addition, the highest total cooling load for the 12 hour on-peak period also occurred on August 18th. The following table shows the 24 hour profile for the peak day. The following table of on-peak cooling demands for the chilled water storage results in a total of 6,103 ton/hr. DOE simulation output can be found in Attachment 8.12

Peak Cooling Day Profile

| Hour | Load (Tons) | Hour | Load (Tons) |
|---|---|---|---|
| 1 AM | 211 | 1 | 590 |
| 2 | 195 | 2 | 607 |
| 3 | 186 | 3 | 579 |
| 4 | 172 | 4 | 495 |
| 5 | 156 | 5 | 473 |
| 6 | 231 | 6 | 430 |
| 7 | 361 | 7 | 382 |
| 8 | 438 | 8 | 354 |
| 9 | 484 | 9 | 336 |
| 10 | 518 | 10 | 318 |
| 11 | 550 | 11 | 301 |
| 12 PM | 557 | 12 AM | 284 |

The annual energy cost for the MCA chilled water system cooling system as based on DOE simulation results is $103,200. Individual components are summarized below and shown in detail on the attached table titled “Existing Operation”.

| Component | Demand kW | On-Peak kWh/yr | Off-Peak kWh/yr | Energy mmBtu | Cost $/yr |
|---|---|---|---|---|---|
| Chillers | 2,310 | 301,229 | 281,018 | 1,987 | $60,700 |
| Tower Fan | 246 | 51,083 | 89,884 | 481 | $11,600 |
| Condenser Pump | 162 | 33,716 | 63,615 | 332 | $7,900 |
| Chilled Water Pump | 493 | 92,417 | 186,049 | 950 | $22,900 |
| Totals | 3,211 | 478,445 | 620,566 | 3,751 | $103,100 |

DOE Simulation, MCA Chilled Water Plant, Existing

| Month | Chiller | | | Tower Fan | | | Condenser Pump | | | Chilled Water Pump | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Annual kW | Off-Peak kWh | On-Peak kWh | Annual kW | Off-Peak kWh | On-Peak kWh | Annual kW | Off-Peak kWh | On-Peak kWh | Annual kW | Annual kWh |
| January | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| February | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| March | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| April | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| May | 369 | 23,982 | 19,785 | 41 | 5,108 | 8,502 | 27 | 3,499 | 6,680 | | |
| June | 442 | 68,071 | 59,135 | 41 | 10,784 | 17,499 | 27 | 6,998 | 12,087 | | |
| July | 422 | 66,972 | 75,300 | 41 | 9,870 | 20,090 | 27 | 6,361 | 13,359 | | |
| August | 441 | 76,939 | 63,923 | 41 | 11,339 | 18,287 | 27 | 7,316 | 12,405 | | |
| September | 365 | 51,299 | 48,917 | 41 | 10,016 | 17,281 | 27 | 6,680 | 12,405 | | |
| October | 271 | 13,966 | 13,958 | 41 | 3,966 | 8,225 | 27 | 2,863 | 6,680 | | |
| November | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| December | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Totals | 2,310 | 301,229 | 281,018 | 246 | 51,083 | 89,884 | 162 | 33,717 | 63,616 | 493 | 278,465 |

Note: DOE does not provide monthly energy usage quantities for chilled water pumps, only annual, demand # is from Electric Model

# FORT MONMOUTH
# PROJECT COST ESTIMATE
***PARTIAL FULL CHILLED WATER STORAGE (EC0-11)***

| NO. | DESCRIPTION | QTY | UNIT | MATERIAL | | LABOR | | TOTAL BARE COST |
|---|---|---|---|---|---|---|---|---|
| | | | | $/UNIT | COST | $/UNIT | COST | |
| 1 | Storage Tank 450,000 Gallons | 1 | Each | $125,000.00 | $140,000 | $42,000.00 | $42,000 | $182,000 |
| 2 | Storage Tank Diffuser | 1 | Each | $23,000.00 | $25,000 | $3,500.00 | $3,500 | $28,500 |
| 3 | Excavation abd Backfill | 1 | Lot | $6,000.00 | $6,000 | $18,000.00 | $18,000 | $24,000 |
| 4 | Insulation | 1 | Lot | $15,000.00 | $15,000 | $7,000.00 | $7,000 | $22,000 |
| 5 | Piping 10" | 750 | Each | $48.00 | $36,000 | $38.00 | $28,500 | $64,500 |
| 6 | Control Valve | 2 | Each | $5,000.00 | $10,000 | $1,400.00 | $2,800 | $12,800 |
| 7 | Controls | 1 | Lot | $8,000.00 | $8,000 | $8,000.00 | $8,000 | $16,000 |
| 8 | Pump, 40 HP | 2 | Each | $4,000.00 | $8,000 | $800.00 | $1,600 | $9,600 |
| 9 | | | | | $0 | | $0 | $0 |
| 10 | | | | | $0 | | $0 | $0 |
| 11 | | | | | $0 | | $0 | $0 |
| 12 | | | | | $0 | | $0 | $0 |
| 13 | | | | | $0 | | $0 | $0 |
| 14 | | | | | $0 | | $0 | $0 |
| 15 | | | | | $0 | | $0 | $0 |
| 16 | | | | | $0 | | $0 | $0 |
| 17 | | | | | $0 | | $0 | $0 |
| 18 | | | | | $0 | | $0 | $0 |
| 19 | | | | | $0 | | $0 | $0 |
| 20 | | | | | $0 | | $0 | $0 |
| 21 | | | | | $0 | | $0 | $0 |
| 22 | | | | | $0 | | $0 | $0 |
| 23 | | | | | $0 | | $0 | $0 |
| 24 | | | | | $0 | | $0 | $0 |
| 25 | | | | | $0 | | $0 | $0 |
| 26 | | | | | $0 | | $0 | $0 |
| 27 | | | | | $0 | | $0 | $0 |
| 28 | | | | | $0 | | $0 | $0 |
| 29 | | | | | $0 | | $0 | $0 |
| 30 | | | | | $0 | | $0 | $0 |
| 31 | | | | | $0 | | $0 | $0 |
| 32 | | | | | $0 | | $0 | $0 |
| 33 | | | | | $0 | | $0 | $0 |
| 34 | | | | | $0 | | $0 | $0 |
| 35 | | | | | $0 | | $0 | $0 |
| 36 | | | | | $0 | | $0 | $0 |
| 37 | | | | | $0 | | $0 | $0 |
| 38 | | | | | $0 | | $0 | $0 |
| 39 | | | | | $0 | | $0 | $0 |
| 40 | | | | | $0 | | $0 | $0 |
| 41 | | | | | $0 | | $0 | $0 |
| 42 | | | | | $0 | | $0 | $0 |
| 43 | | | | | $0 | | $0 | $0 |
| 44 | | | | | $0 | | $0 | $0 |
| 45 | | | | | $0 | | $0 | $0 |
| 46 | | | | | $0 | | $0 | $0 |
| 47 | | | | | $0 | | $0 | $0 |
| 48 | | | | | $0 | | $0 | $0 |
| 49 | | | | | $0 | | $0 | $0 |
| 50 | | | | | $0 | | $0 | $0 |
| 51 | | | | | $0 | | $0 | $0 |
| | SUBTOTAL | | | | | | | $359,400 |
| | OVERHEAD AND PROFIT | | | | $24,800 | | $61,300 | $86,100 |
| | CITY COST INDEX MULTIPLIER | | | | | | | |
| | DIFFICULTY FACTOR | | | | | | | |
| | CONTINGENCY | | | | $27,300 | | $17,300 | $44,600 |
| | SIOH(5.5%) & DESIGN FEE(6%) | | | 27,000 | | 29,000 | | $56,000 |
| | **BASE TOTAL COST** | | | | **$300,000** | | **$190,000** | **$546,000** |

G:\4130.05\SS\ECOS\ECO-11CE.WK4 12-Jul-96

**Proposed.**

Utilize both existing 690 ton chillers to produce and store chilled water during utility off-peak periods when the cost for electricity is lower. Install equipment to store 3,700 ton-hour of chilled water for use during on-peak periods (Table above adds to 6,103 ton/hrs). The storage system will be capable of providing sufficient cooling to reduce the existing cooling peak by 50% (approximately 300 tons (608 tons x 50%). This amount of storage is equivalent to approximately 450,000 gallons of chilled water storage.

During the on-peak period (8:00 a.m. to 8:00 p.m.), the stored chilled water will be utilized to meet a minimum of 50% of the cooling load. The existing chillers, tower, and condenser pump chiller will operate during the on-peak period to meet any additional load above 300 tons. The operation of the chilled water pump will remain unchanged. During the off-peak (8:00 pm to 8:00 am) the 690 ton chillers will operate to meet both building load and chilled water tank charging. The storage system will be used from June to October during the summer electric rate period.

For this analysis, 50% storage was assumed. Therefore, the storage was sized so that during the on-peak period 50% of the peak cooling hour will be provided by the stored chilled water. On cooler days, stored chilled will be capable of providing higher percentages. Use of the chilled water storage system will reduce demand charges. Generating cooling at night also takes advantages of the lower off-peak cost of energy (kWh). A DOE simulation model was performed based upon the above parameters with summarized results shown on the following table. With the new chilled water storage system the on-peak kWh will be shifted to off-peak hours. The table on the following page titled "Partial Chilled Water Storage Hourly Profile" demonstrates the operation of the new system.

The new storage system will be buried on the grounds adjacent to the chilled water building. The existing chillers will be retained and will not require modifications. New piping and controls will need to be added. The annual energy cost for the MCA system will be $88,300.

DOE Output
Partial Chilled Water Storage Hourly Profile

| Day | Time | Building Load Tons | Chiller Load Tons | Tank Release Tons | Tank Charge Tons | Losses Tons |
|---|---|---|---|---|---|---|
| Aug 17th | 1 am | 184 | 717 | 0 | 508 | 25 |
| | 2 | 161 | 695 | 0 | 508 | 25 |
| | 3 | 152 | 286 | 0 | 109 | 25 |
| | 4 | 138 | 164 | 0 | 0 | 25 |
| | 5 | 133 | 158 | 0 | 0 | 25 |
| | 6 | 201 | 226 | 0 | 0 | 25 |
| | 7 | 340 | 365 | 0 | 0 | 25 |
| | 8 | 410 | 127 | 308 | 0 | 25 |
| | 9 | 457 | 174 | 308 | 0 | 25 |
| | 10 | 475 | 192 | 308 | 0 | 25 |
| | 11 | 508 | 225 | 308 | 0 | 25 |
| | 12 pm | 530 | 247 | 308 | 0 | 25 |
| | 1 | 538 | 255 | 308 | 0 | 25 |
| | 2 | 538 | 255 | 308 | 0 | 25 |
| | 3 | 507 | 224 | 308 | 0 | 25 |
| | 4 | 427 | 144 | 308 | 0 | 25 |
| | 5 | 410 | 126 | 308 | 0 | 25 |
| | 6 | 374 | 91 | 308 | 0 | 25 |
| | 7 | 299 | 51 | 273 | 0 | 25 |
| | 8 | 276 | 810 | 0 | 508 | 25 |
| | 9 | 251 | 785 | 0 | 508 | 25 |
| | 10 | 228 | 762 | 0 | 508 | 25 |
| | 11 | 212 | 746 | 0 | 508 | 25 |
| | 12 | 197 | 731 | 0 | 508 | 25 |
| Aug 18th | 1 am | 186 | 720 | 0 | 508 | 25 |
| | 2 | 169 | 703 | 0 | 508 | 25 |
| | 3 | 161 | 296 | 0 | 109 | 25 |
| | 4 | 147 | 172 | 0 | 0 | 25 |
| | 5 | 131 | 156 | 0 | 0 | 25 |
| | 6 | 206 | 231 | 0 | 0 | 25 |
| | 7 | 336 | 361 | 0 | 0 | 25 |
| | 8 | 413 | 130 | 308 | 0 | 25 |
| | 9 | 459 | 176 | 308 | 0 | 25 |
| | 10 | 493 | 210 | 308 | 0 | 25 |
| | 11 | 525 | 242 | 308 | 0 | 25 |
| | 12 pm | 531 | 248 | 308 | 0 | 25 |
| | 1 | 565 | 282 | 308 | 0 | 25 |
| | 2 | 582 | 298 | 308 | 0 | 25 |
| | 3 | 554 | 271 | 308 | 0 | 25 |
| | 4 | 470 | 187 | 308 | 0 | 25 |
| | 5 | 448 | 164 | 308 | 0 | 25 |
| | 6 | 405 | 122 | 308 | 0 | 25 |
| | 7 | 357 | 109 | 273 | 0 | 25 |
| | 8 | 329 | 862 | 0 | 508 | 25 |
| | 9 | 311 | 844 | 0 | 508 | 25 |
| | 10 | 293 | 826 | 0 | 508 | 25 |
| | 11 | 276 | 810 | 0 | 508 | 25 |
| | 12 | 259 | 793 | 0 | 508 | 25 |

Partial Chilled Water Storage

***Proposed Operation, Partial Chilled Water Storage2, DOE Simulation Output***

| Month | Chiller | | | Tower Fan | | | Condenser Pump | | | Chilled Water Pump | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | Annual kWh |
| January | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| February | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| March | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| April | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| May | 181 | 5,384 | 35,734 | 40 | 1,864 | 9,264 | 28 | 1,467 | 5,472 | | |
| June | 220 | 25,445 | 103,808 | 39 | 7,131 | 21,301 | 28 | 5,500 | 10,182 | | |
| July | 210 | 28,538 | 120,430 | 40 | 8,174 | 23,108 | 28 | 6,233 | 10,492 | | |
| August | 219 | 32,140 | 113,563 | 40 | 9,003 | 22,381 | 28 | 6,882 | 10,577 | | |
| September | 179 | 12,257 | 81,127 | 39 | 4,257 | 19,394 | 28 | 3,356 | 10,154 | | |
| October | 131 | 559 | 19,991 | 39 | 253 | 7,240 | 28 | 197 | 5,077 | | |
| November | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| December | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Totals | 1,140 | 104,323 | 474,653 | 237 | 30,682 | 102,688 | 168 | 23,635 | 51,954 | 493 | 278,465 |

| Component | Demand kW | On-Peak kWh/yr | Off-Peak kWh/yr | Energy mmBtu | Cost $/yr |
|---|---|---|---|---|---|
| Chillers | 1,140 | 104,323 | 474,653 | 1,976 | $47,900 |
| Tower Fan | 237 | 30,682 | 102,668 | 455 | $10,900 |
| Condenser Pump | 168 | 23,635 | 51,954 | 258 | $6,500 |
| Chilled Water Pump | 493 | 92,417 | 186,048 | 950 | $22,900 |
| Totals | 2,038 | 251,057 | 815,323 | 3,640 | $88,200 |

**Construction Cost.** The expected construction cost is $546,000. (See Attached Cost Breakdown).

| | |
|---|---|
| Material | $ 300,000 |
| Labor | $ 190,000 |
| SIOH | $ 27,000 |
| Engineering | $ 29,000 |
| Total | $ 546,000 |

**Savings.** The annual cost savings resulting from the implementation of this project will be $14,900 ($103,100 - $88,200).

Demand kW = 2,718 kW/yr (3,211 kW/yr - 2,038 kW/yr)

On-Peak kWh = 227,388 kWh/yr (486,275 kWh/yr - 258,887 kWh/yr)

Off-Peak kWh = -194,758 kWh/yr (612,735 kWh/yr - 807,493 kWh)

Energy Usage = 111 mmBtu (((227,388 kWh/y - 194,758 kWh/yr) x 3,413 Btu/kWh) ÷ 1,000,000 Btu/mmBtu]

| Component | Demand kW | On-Peak kWh/yr | Off-Peak kWh/yr | Energy mmBtu | Cost $/yr |
|---|---|---|---|---|---|
| Chillers | 1,170 | 196,906 | (193,635) | 11 | $12,800 |
| Tower Fan | 9 | 20,401 | (12,784) | 26 | $700 |
| Condenser Pump | (6) | 10,081 | 11,661 | 74 | $1,400 |
| Chilled Water Pump | 0 | 0 | 0 | 0 | $0 |
| Totals | 1,173 | 227,388 | (194,758) | 111 | $14,900 |

**Maintenance Savings.** There is no additional monetary savings due to reduced maintenance. In reality the maintenance cost would probably go up to some degree, for analysis purposes we have assumed no impact.

**Discussion.** Payback = 37 years

SIR = 0.4

The expected payback resulting from the implementation of this project is 37 years ($550,000 ÷ $14,900). This ECO is not recommended because the savings do not justify the cost for equipment replacement.

LIFE CYCLE COST ANALYSIS SUMMARY STUDY: MON1
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92)
INSTALLATION & LOCATION: REGION NOS. 2 CENSUS: 1
PROJECT NO. & TITLE:
FISCAL YEAR DISCRETE PORTION NAME: ECO#11
ANALYSIS DATE: 07-03-96 ECONOMIC LIFE 20 YEARS PREPARED BY:

1. INVESTMENT

| | | | |
|---|---|---|---|
| A. CONSTRUCTION COST | $ 490000. | | |
| B. SIOH | $ 27000. | | |
| C. DESIGN COST | $ 29000. | | |
| D. TOTAL COST (1A+1B+1C) | $ 546000. | | |
| E. SALVAGE VALUE OF EXISTING EQUIPMENT | | $ 0. | |
| F. PUBLIC UTILITY COMPANY REBATE | | $ 0. | |
| G. TOTAL INVESTMENT (1D - 1E - 1F) | | | $ 546000. |

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1995

| FUEL | UNIT COST $/MBTU(1) | SAVINGS MBTU/YR(2) | ANNUAL $ SAVINGS(3) | DISCOUNT FACTOR(4) | DISCOUNTED SAVINGS(5) |
|---|---|---|---|---|---|
| A. ELECT | $134.23 | 111. | $ 14900. | 13.86 | $ 206507. |
| B. DIST | $ .00 | 0. | $ 0. | 16.99 | $ 0. |
| C. RESID | $ .00 | 0. | $ 0. | 17.38 | $ 0. |
| D. NAT G | $ 7.28 | 0. | $ 0. | 17.14 | $ 0. |
| E. COAL | $ .00 | 0. | $ 0. | 13.56 | $ 0. |
| F. LPG | $ .00 | 0. | $ 0. | 15.12 | $ 0. |
| M. DEMAND SAVINGS | | | $ 0. | 13.47 | $ 0. |
| N. TOTAL | | 111. | $ 14900. | | $ 206507. |

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-) $ 0.
(1) DISCOUNT FACTOR (TABLE A) 13.47
(2) DISCOUNTED SAVING/COST (3A X 3A1) $ 0.

B. NON RECURRING SAVINGS(+) / COSTS(-)

| ITEM | SAVINGS(+) COST(-) (1) | YR OC (2) | DISCNT FACTR (3) | DISCOUNTED SAVINGS(+)/ COST(-) (4) |
|---|---|---|---|---|
| d. TOTAL | $ 0. | | | 0. |

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4) $ 0.

4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE)) $ 14900.

5. SIMPLE PAYBACK PERIOD (1G/4) 36.65 YEARS

6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) $ 206507.

7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= .38
(IF < 1 PROJECT DOES NOT QUALIFY)

## ECO-12
## VARIABLE FLOW PRIMARY-SECONDARY CHILLED WATER DISTRIBUTION

**Existing.** Currently Building 2700 utilizes a central chilled water system for a portion of its cooling needs. This system was installed during the 1983 renovation under the Major Construction Activities Program (MCA). This system has been referred to as "MCA Chilled Water Plant". As shown in Section 3 of this report the current system consists of the following equipment:

| Description | Quantity, Size, Load |
|---|---|
| Centrifugal Chillers | 2 - 690 tons - 538 kW/ea |
| Cooling Tower | 1 - 1,380 Tons - 56 kW |
| Condenser Pumps | 2 - 19 kW/ea |
| Chilled Water Pumps | 2 - 75 kW/ea |

The system is presently operated from mid May through mid October. As indicated in Section 5, a DOE hourly simulation was performed. DOE calculated a peak cooling load of 608 tons at 2:00 p.m. on August 18. DOE simulation output can be found in Attachment 8.12. The annual energy cost for the MCA chilled water system cooling system as based on DOE simulation results is $103,100. Individual components are summarized below and shown in detail on the attached table titled "Existing Operation".

| Component | Demand kW | On-Peak kWh/yr | Off-Peak kWh/yr | Energy mmBtu | Cost $/yr |
|---|---|---|---|---|---|
| Chillers | 2,310 | 301,229 | 281,018 | 1,987 | $60,700 |
| Tower Fan | 246 | 51,083 | 89,884 | 481 | $11,600 |
| Condenser Pump | 162 | 33,716 | 63,615 | 332 | $7,900 |
| Chilled Water Pump | 493 | 92,417 | 186,048 | 950 | $22,900 |
| Totals | 3,211 | 478,445 | 620,565 | 3,751 | $103,100 |

DOE Simulation, MCA Chilled Water Plant, Existing

| Month | Chiller | | | Tower Fan | | | Condenser Pump | | | Chilled Water Pump | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh |
| January | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| February | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| March | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| April | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| May | 369 | 23,978 | 19,785 | 41 | 5,108 | 8,502 | 27 | 3,499 | 6,680 | 91 | 9,638 | 21,339 |
| June | 442 | 68,049 | 59,131 | 41 | 10,784 | 17,499 | 27 | 6,998 | 12,087 | 94 | 19,055 | 34,579 |
| July | 422 | 66,947 | 75,296 | 41 | 9,870 | 20,090 | 27 | 6,361 | 13,359 | 94 | 17,459 | 36,150 |
| August | 440 | 76,910 | 63,920 | 41 | 11,339 | 18,287 | 27 | 7,316 | 12,405 | 94 | 20,086 | 34,499 |
| September | 364 | 51,288 | 48,917 | 41 | 10,016 | 17,281 | 27 | 6,680 | 12,405 | 91 | 18,054 | 37,094 |
| October | 271 | 13,965 | 13,958 | 41 | 3,966 | 8,225 | 27 | 2,863 | 6,680 | 88 | 8,126 | 22,386 |
| November | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| December | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Totals | 2,308 | 301,137 | 281,007 | 246 | 51,083 | 89,884 | 162 | 33,717 | 63,616 | 552 | 92,417 | 186,048 |

Variable Speed Pumping

***Proposed Operation, Variable Speed Pumping, DOE Simulation Output***

| Month | Chiller | | | Tower Fan | | | Condenser Pump | | | Chilled Water Pump | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh | Annual kW | On-Peak kWh | Off-Peak kWh |
| January | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| February | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| March | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| April | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| May | 369 | 23,978 | 19,785 | 41 | 5,108 | 8,502 | 27 | 3,499 | 6,680 | 76 | 3,835 | 11,798 |
| June | 442 | 68,049 | 59,131 | 41 | 10,784 | 17,499 | 27 | 6,998 | 12,087 | 90 | 7,582 | 19,118 |
| July | 422 | 66,947 | 75,296 | 41 | 9,870 | 20,090 | 27 | 6,361 | 13,359 | 90 | 6,947 | 19,986 |
| August | 440 | 76,910 | 63,920 | 41 | 11,339 | 18,287 | 27 | 7,316 | 12,405 | 91 | 7,993 | 19,073 |
| September | 364 | 51,288 | 48,917 | 41 | 10,016 | 17,281 | 27 | 6,680 | 12,405 | 77 | 7,184 | 20,508 |
| October | 271 | 13,965 | 13,958 | 41 | 3,966 | 8,225 | 27 | 2,863 | 6,680 | 58 | 3,233 | 12,377 |
| November | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| December | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Totals | 2,308 | 301,137 | 281,007 | 246 | 51,083 | 89,884 | 162 | 33,717 | 63,616 | 482 | 36,776 | 102,859 |

**Proposed.** Convert the existing constant flow chilled water system to a variable flow system. This would require the existing system to be converted to a primary/secondary pumping arrangement. The existing 100 hp pumps will be retained and used as secondary pumps with the addition of variable speed controls. Two new pumps and piping would be added in the mechanical room to maintain a constant flow through the chillers. Because of the low head, the new pumps are estimated to be only 15 hp. Using DOE, the above modification was simulated by changing the "Pump Type" from fixed speed to variable speed. The indicated the annual cooling cost for this system would be $93,900 as shown in the following table.

| Component | Demand kW | On-Peak kWh/yr | Off-Peak kWh/yr | Energy mmBtu | Cost $/yr |
|---|---|---|---|---|---|
| Chillers | 2,310 | 301,229 | 281,018 | 1,987 | $60,700 |
| Tower Fan | 246 | 51,083 | 89,884 | 481 | $11,600 |
| Condenser Pump | 162 | 33,716 | 63,615 | 332 | $7,900 |
| Chilled Water Pump | 493 | 36,776 | 102,859 | 477 | $13,700 |
| Totals | 3,211 | 422,804 | 537,376 | 3,277 | $93,900 |

**Construction Cost.** The expected construction cost is $176,900 (See Attached Cost Breakdown).

| | |
|---|---|
| Material | $ 104,100 |
| Labor | $ 54,600 |
| SIOH | $ 8,700 |
| Engineering | $ 9,500 |
| Total | $ 176,900 |

**Savings.** The annual cost savings resulting from the implementation of this project will be $9,200 ($103,100 - $93,900).

Demand kW = 0 kW/yr (3,211 kW/yr - 3,211 kW/yr)

On-Peak kWh = 55,641 kWh/yr (478,445 kWh/yr - 422,804 kWh/yr)

Off-Peak kWh = 83,189 kWh/yr (620,565 kWh/yr - 537,376 kWh)

Energy Usage = 474 mmBtu (((55,641 kWh/y + 83,189 kWh/yr) x 3,413 Btu/kWh) ÷ 1,000,000 Btu/mmBtu]

| Component | Demand kW | On-Peak kWh/yr | Off-Peak kWh/yr | Energy mmBtu | Cost $/yr |
|---|---|---|---|---|---|
| Chillers | 0 | 0 | 0 | 0 | $0 |
| Tower Fan | 0 | 0 | 0 | 0 | $0 |
| Condenser Pump | 0 | 0 | 0 | 0 | $0 |
| Chilled Water Pump | 0 | 55,641 | 83,189 | 474 | $9,200 |
| Totals | 0 | 55,641 | 83,189 | 474 | $9,200 |

**Maintenance Savings.** There is no additional monetary savings due to reduced maintenance.

**Discussion.** Payback = 19.2 years

SIR = 0.7

The expected payback resulting from the implementation of this project is 19.2 years ($176,900 ÷ $9,200). This ECO is not recommended because the savings do not justify the cost for equipment replacement.

**FORT MONMOUTH**
**PROJECT COST ESTIMATE**
***Variable Flow Primary-Secondary Chilled Water Distribution (ECO-12)***

| NO. | DESCRIPTION | QTY | UNIT | MATERIAL $/UNIT | MATERIAL COST | LABOR $/UNIT | LABOR COST | TOTAL BARE COST |
|---|---|---|---|---|---|---|---|---|
| 1 | Primary Pump, 15hp | 3 | Each | $2,000.00 | $6,000 | $1,000.00 | $3,000 | $9,000 |
| 2 | Primary Piping | 100 | lf | $50.00 | $5,000 | $50.00 | $5,000 | $10,000 |
| 3 | Secondary Piping | 100 | lf | $50.00 | $5,000 | $50.00 | $5,000 | $10,000 |
| 4 | Variable Frequency Drives | 2 | Each | $25,000.00 | $50,000 | $2,000.00 | $4,000 | $54,000 |
| 5 | Relocate Existing Pumps w/ Pads | 3 | Each | $1,000.00 | $3,000 | $2,000.00 | $6,000 | $9,000 |
| 6 | Controls, Tubing, Valves | 1 | Lot | $10,000.00 | $10,000 | $5,000.00 | $5,000 | $15,000 |
| 7 | Transformers | 1 | Each | $5,000.00 | $5,000 | $1,000.00 | $1,000 | $6,000 |
| 8 | Misc. Electrical | 1 | Lot | $2,000.00 | $2,000 | $3,000.00 | $3,000 | $5,000 |
| 9 | | | | | $0 | | $0 | $0 |
| 10 | | | | | $0 | | $0 | $0 |
| 11 | | | | | $0 | | $0 | $0 |
| 12 | | | | | $0 | | $0 | $0 |
| 13 | | | | | $0 | | $0 | $0 |
| 14 | | | | | $0 | | $0 | $0 |
| 15 | | | | | $0 | | $0 | $0 |
| 16 | | | | | $0 | | $0 | $0 |
| 17 | | | | | $0 | | $0 | $0 |
| 18 | | | | | $0 | | $0 | $0 |
| 19 | | | | | $0 | | $0 | $0 |
| 20 | | | | | $0 | | $0 | $0 |
| 21 | | | | | $0 | | $0 | $0 |
| 22 | | | | | $0 | | $0 | $0 |
| 23 | | | | | $0 | | $0 | $0 |
| 24 | | | | | $0 | | $0 | $0 |
| 25 | | | | | $0 | | $0 | $0 |
| 26 | | | | | $0 | | $0 | $0 |
| 27 | | | | | $0 | | $0 | $0 |
| 28 | | | | | $0 | | $0 | $0 |
| 29 | | | | | $0 | | $0 | $0 |
| 30 | | | | | $0 | | $0 | $0 |
| 31 | | | | | $0 | | $0 | $0 |
| 32 | | | | | $0 | | $0 | $0 |
| 33 | | | | | $0 | | $0 | $0 |
| 34 | | | | | $0 | | $0 | $0 |
| 35 | | | | | $0 | | $0 | $0 |
| 36 | | | | | $0 | | $0 | $0 |
| 37 | | | | | $0 | | $0 | $0 |
| 38 | | | | | $0 | | $0 | $0 |
| 39 | | | | | $0 | | $0 | $0 |
| 40 | | | | | $0 | | $0 | $0 |
| 41 | | | | | $0 | | $0 | $0 |
| 42 | | | | | $0 | | $0 | $0 |
| 43 | | | | | $0 | | $0 | $0 |
| 44 | | | | | $0 | | $0 | $0 |
| 45 | | | | | $0 | | $0 | $0 |
| 46 | | | | | $0 | | $0 | $0 |
| 47 | | | | | $0 | | $0 | $0 |
| 48 | | | | | $0 | | $0 | $0 |
| 49 | | | | | $0 | | $0 | $0 |
| 50 | | | | | $0 | | $0 | $0 |
| 51 | | | | | $0 | | $0 | $0 |
| 52 | | | | | $0 | | $0 | $0 |
| 53 | | | | | $0 | | $0 | $0 |
| 54 | | | | | $0 | | $0 | $0 |
| 55 | | | | | $0 | | $0 | $0 |
| 56 | | | | | $0 | | $0 | $0 |
| 57 | | | | | $0 | | $0 | $0 |
| 58 | | | | | $0 | | $0 | $0 |
| 59 | | | | | $0 | | $0 | $0 |
| 60 | | | | | $0 | | $0 | $0 |
| 61 | | | | | $0 | | $0 | $0 |
| 62 | | | | | $0 | | $0 | $0 |
| 63 | | | | | $0 | | $0 | $0 |
| | SUBTOTAL | | | | | | | $118,000 |
| | OVERHEAD AND PROFIT | | | | $8,600 | | $17,600 | $26,200 |
| | CITY COST INDEX MULTIPLIER | | | | | | | |
| | DIFFICULTY FACTOR | | | | | | | |
| | CONTINGENCY | | | | $9,500 | | $5,000 | $14,500 |
| | SIOH(5.5%) & DESIGN FEE(6%) | | | $8,700 | | $9,500 | | $18,200 |
| | **BASE TOTAL COST** | | | | **$104,100** | | **$54,600** | **$176,900** |

LIFE CYCLE COST ANALYSIS SUMMARY STUDY: MON1
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92)
INSTALLATION & LOCATION: REGION NOS. 2 CENSUS: 1
PROJECT NO. & TITLE:
FISCAL YEAR DISCRETE PORTION NAME: ECO#12
ANALYSIS DATE: 07-03-96 ECONOMIC LIFE 20 YEARS PREPARED BY:

1. INVESTMENT

| | | |
|---|---|---|
| A. CONSTRUCTION COST | $ | 158700. |
| B. SIOH | $ | 8700. |
| C. DESIGN COST | $ | 9500. |
| D. TOTAL COST (1A+1B+1C) | $ | 176900. |
| E. SALVAGE VALUE OF EXISTING EQUIPMENT | $ | 0. |
| F. PUBLIC UTILITY COMPANY REBATE | $ | 0. |
| G. TOTAL INVESTMENT (1D - 1E - 1F) | $ | 176900. |

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1995

| FUEL | UNIT COST $/MBTU(1) | SAVINGS MBTU/YR(2) | ANNUAL $ SAVINGS(3) | DISCOUNT FACTOR(4) | DISCOUNTED SAVINGS(5) |
|---|---|---|---|---|---|
| A. ELECT | $ 19.41 | 474. | $ 9200. | 13.86 | $ 127517. |
| B. DIST | $ .00 | 0. | $ 0. | 16.99 | $ 0. |
| C. RESID | $ .00 | 0. | $ 0. | 17.38 | $ 0. |
| D. NAT G | $ 7.28 | 0. | $ 0. | 17.14 | $ 0. |
| E. COAL | $ .00 | 0. | $ 0. | 13.56 | $ 0. |
| F. LPG | $ .00 | 0. | $ 0. | 15.12 | $ 0. |
| M. DEMAND SAVINGS | | | $ 0. | 13.47 | $ 0. |
| N. TOTAL | | 474. | $ 9200. | | $ 127517. |

3. NON ENERGY SAVINGS(+) / COST(-)

| | | |
|---|---|---|
| A. ANNUAL RECURRING (+/-) | | $ 0. |
| (1) DISCOUNT FACTOR (TABLE A) | 13.47 | |
| (2) DISCOUNTED SAVING/COST (3A X 3A1) | | $ 0. |

B. NON RECURRING SAVINGS(+) / COSTS(-)

| ITEM | SAVINGS(+) COST(-) (1) | YR OC (2) | DISCNT FACTR (3) | DISCOUNTED SAVINGS(+)/ COST(-)(4) |
|---|---|---|---|---|
| d. TOTAL | $ 0. | | | 0. |

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4) $ 0.

4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE)) $ 9200.

5. SIMPLE PAYBACK PERIOD (1G/4) 19.23 YEARS

6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) $ 127517.

7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= .72
(IF < 1 PROJECT DOES NOT QUALIFY)

# 7.0 CONCLUSION

## 7.1 General

Seventeen (17) ECOs or Options to ECOs were evaluated in this report. Of these ECOs, the first one and it's five options relate directly to the decentralization of Building 2700 Central Boiler Plant. The remaining eleven ECOs cover various HVAC type opportunities involving heating and/or cooling.

A summary of ECOs in the order presented in Section 6 is shown in Table 7.1.1. Included with each ECO listed are the construction costs, the annual energy savings, the annual maintenance savings, the LCCID payback periods and SIR.

| ECO # | ECO Description | Implementation Costs | | |
|---|---|---|---|---|
| | | Construction Cost | SIOH Cost | Design Cost |
| 1 | Steam Decentralization, Base Case | $1,199,000 | $67,000 | $73,000 |
| 1A | New Steam Boilers in Building 2700 | | | |
| 1B | New Hot Water Boilers for Cleanroom | $1,229,000 | $69,000 | $74,000 |
| 1C | Operate Cleanrooms with MCA Hot Water | | | |
| 1D | Electric Domestic Hot Water Generator | | | |
| 1E | Decentralize Domestic Hot Water | $1,238,000 | $69,000 | $75,000 |
| 2 | Building 2700 MCA System ±5°F Temp. Setback Control | $46,200 | $2,500 | $2,800 |
| 3 | Reduce Building Infiltration | $86,000 | $4,700 | $5,300 |
| 4 | Replace Existing Central Chillers | $258,900 | $14,000 | $16,000 |
| 5 | Convert Specific Air Cooled Chillers to Water Cooled | $249,500 | $14,000 | $15,000 |
| 6 | Free Cooling | $80,400 | $4,000 | $5,000 |
| 7 | 2-Speed Fan Operation | $26,600 | $1,500 | $1,600 |
| 8 | Replace DHW Recirculation Pumps | | | |
| 9 | Automated MCA HW Temperature Reset | $12,500 | $700 | $800 |
| 10 | Full Chilled Water Storage | $800,000 | $44,000 | $48,000 |
| 11 | Partial Chilled Water Storage | $490,000 | $27,000 | $29,000 |
| 12 | Variable Flow Primary-Secondary Chilled Water Dist. | $158,700 | $8,700 | $9,500 |



1

## mmary for Fort Monmouth
## Table 7.1.1

| osts | | Annual Savings | | | | | | LCCID Payback | LCCID SIR |
|---|---|---|---|---|---|---|---|---|---|
| ign st | Total Cost | Gas mmBtu | Gas Cost | Electric mmBtu | Electric Cost | $/mmBtu | Recurring Maintenance | | |
| ,000 | $1,339,000 | 36,685 | $267,000 | (67) | ($1,089) | $16.25 | $190,000 | 2.9 | 5.32 |
| | $0 | | | | | | | | |
| .000 | $1,372,000 | 37,525 | $273,000 | (119) | ($2,989) | $25.12 | $190,000 | 3.0 | 5.25 |
| | $0 | | | | | | | | |
| | $0 | | | | | | | | |
| 000 | $1,382,000 | 39,235 | $285,510 | (984) | ($19,661) | $19.98 | $170,000 | 3.2 | 5.00 |
| 800 | $51,500 | 623 | $4,500 | 1,887 | $34,200 | $18.12 | | 1.3 | 10.7 |
| 300 | $96,000 | 1,329 | $9,700 | (2) | $0 | $0.00 | | 9.9 | 1.7 |
| 000 | $288,900 | | | 1,018 | $25,066 | $24.62 | | 11.5 | 1.2 |
| 000 | $278,500 | | | 274 | $7,367 | $26.89 | | 37.8 | 0.4 |
| 000 | $89,400 | | | 183 | $4,408 | $24.09 | | 20.3 | 0.7 |
| 500 | $29,700 | | | 141 | $2,600 | $18.44 | | 11.4 | 1.2 |
| | $0 | | | | | | | | |
| 300 | $14,000 | 351 | $2,500 | | | | | 5.5 | 3.1 |
| )00 | $892,000 | | | 420 | $36,200 | $86.19 | | 24.6 | 0.6 |
| )00 | $546,000 | | | 111 | $14,900 | $134.23 | | 36.7 | 0.4 |
| 500 | $176,900 | | | 474 | $9,200 | $19.41 | | 19.2 | 0.7 |

2

The lists of the recommended or non recommended ECOs are shown in the following sections. In addition to the summary information for each ECO a comment is added to each ECO in the two lists which relates to Entech's opinion on which category the project falls under. Below is the criteria that is used to categorize the report's findings (ie. ECIP, Non-ECIP etc.). Qualifying for ECIP requires a project to have a low limit for construction, and an acceptable payback and investment ratio. In addition it cannot be an operation and maintenance project which is defined as:

> **O & M Energy Projects:** An O & M Energy Project is one that results in needed maintenance and repair to an existing facility, or replaces a failed or failing existing facility, and also results in energy savings.

The following criteria is the basis to recommend or not-recommend ECOs for this report. The criteria is from the scope for this project which is included in Appendix 8.13

Qualifications for Project Recommendation:

1. **ECIP:** Projects that have $300,000 construction cost, SIR > 1.25, payback < 10 years.

   **Non-ECIP:** Projects that do not meet 1, or they fall under 2 or 3. (If an ECO is recommended and does not fall under 2 or 3, then it will be considered Non-ECIP General)

2. **O & M Projects (by definition):** $300,000 construction cost, SIR > 1.25, payback < 10 years.

3. **Low Cost/No Cost Projects:** Fort Monmouth can implement with their own resources

4. **Non-feasible:** ECOs that are not recommended based on findings for 1, 2, and 3, or because of reasons stated in the individual ECO discussion section and/or the not recommended table.

## 7.2 Recommended ECOs

Of the seventeen (17) ECOs addressed, four (4) have been found to be acceptable, and they are listed in Table 7.2.1. They are listed from highest to lowest savings to investment ratio.

**Recommend ECO List for Fort Monmouth**
**Table 7.2.1**

| | ECO # | Description | Total Cost | Annual Energy Savings | Annual Maint. Savings | LCCID Payback | LCCID SIR | Comment |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | Bldg 2700 MCA System ±5° Temp. Setback Control | $51,500 | $38,700 | $0 | 1.3 | 10.70 | Non-ECIP (LC/NC) |
| 2 | 1 | Steam Decentralization | $1,339,000 | $265,911 | $190,000 | 2.9 | 5.32 | ECIP |
| 3 | 9 | Automated MCA HW Temp. Reset | $14,000 | $2,500 | $0 | 5.5 | 3.10 | Non-ECIP (LC/NC) |
| 4 | 3 | Reduce Building Infiltration | $96,000 | $9,700 | $0 | 9.9 | 1.7 | Non-ECIP (LC/NC) |
| | | **Total** | **$1,500,500** | **$316,811** | **$190,000** | **4.9** | | |

## 7.3 Non-Recommended ECOs

Thirteen (13) ECOs out of the original seventeen (17) are not-recommended for implementation. Those ECOs were not recommended ECOs for various reasons including the criteria in Section 6.1. The not-recommended are listed in Table 7.3.1. They are categorized in the same order as they were presented in Section 6. Omitted from that list are the recommended ECOs found in Section 7.2. Included in the table are ECO descriptions, savings, maintenance savings (costs), LCCID payback periods and SIRs and a general comment about the ECO.

# Not Recommended ECO List for Fort Monmouth
## Table 7.3.1

| No. | Description | Total Cost | Annual Energy Savings | Annual Maint. Savings | LCCID Payback | LCCID SIR | Comments |
|---|---|---|---|---|---|---|---|
| 1A | New Steam Boilers in Bldg. 2700 | $0 | $0 | $0 | 0 | 0 | Not required. |
| 1B | New Hot Water Boiler for Cleanroom | $1,372,000 | $270,011 | $190,000 | 3.0 | 5.25 | Could replace the base case if hot water is desired. |
| 1C | Operate Cleanrooms w/MCA Hot Water | $0 | $0 | $0 | 0 | 0 | Not Feasible. |
| 1D | Electric DHW Generator | $0 | $0 | $0 | 0 | 0 | Higher energy cost for same application. |
| 1E | Decentralize DHW | $1,382,000 | $265,849 | $170,000 | 3.2 | 5.00 | Payback/SIR not as good as ECO-1 |
| 4 | Replace Existing Central Chillers | $288,900 | $25,066 | $0 | 11.5 | 1.2 | Savings can not justify equipment. |
| 5 | Convert Specific Air Cooled Chillers to Water Cooled | $278,500 | $7,367 | $0 | 37.8 | 0.40 | Savings can not justify equipment. |
| 6 | Free Cooling | $89,400 | $4,408 | $0 | 20.3 | 0.70 | Savings can not justify equipment. |
| 7 | 2-Speed Fan Operation | $29,700 | $2,600 | $0 | 11.4 | 1.2 | Savings can not justify equipment. |
| 8 | Replace DHW Recirculation Pumps | $0 | $0 | $0 | 0 | 0 | Not required. |
| 10 | Full Chilled Water Storage | $892,000 | $36,200 | $0 | 24.6 | 0.60 | Savings can not justify equipment. |
| 11 | Partial Chilled Water Storage | $546,000 | $14,900 | $0 | 36.7 | 0.40 | Savings can not justify equipment. |
| 12 | Variable Flow, Primary/Secondary Chilled Water Dist. | $176,900 | $9,200 | $0 | 19.2 | 0.70 | Savings can not justify equipment. |

# Attachment 8.1

# Maintenance Equipment List for Building 2700

16-Jun-93 RECURRING WORKLOAD

NYER CENTER AIR CONDITIONING

| LOCATION | MAKE | MODEL | SERIAL NUMBER | SIZE | CORROSION CONTROL |
|---|---|---|---|---|---|
| OA LEVEL: | | | | | |
| OA RM 400 (C6) | NA | NA | NA | 25 | |
| Cond on ground-eastside of bldg (Air handler in MR OA 400) | | | | | |
| SIDE OF BLDG | McQUAY | ALP045C | 5RD0700400 | 25 | 0 |
| FOR CAFETERIA | McQUAY | LML 122 DH | 3RC00 525-04 | | |
| OA418/CAFETERIA | AIR HANDLER COND | | | | |
| CAFETERIA OFC | CARRIER | 38GS036350 | U121639 | 3 | |
| CAFETERIA OFC | CARRIER | 38GS036350 | U121648 | 3 | |
| 1ST FLOOR: | | | | | |
| 1B 110 | CEILING MATE | CMW180-1 | 1330 | 2 | |
| 1B 124 | McQUAY | VSC040E | 57D3505051 | 40 | 0 |
| 1B 128 | COMFORT AIR PKG UNIT | 51016-13A | 13007199541 | 10 | |
| 1B 141-A | CHRYSLER | 1005 | NA | 5 | |
| 1B 202 | CARRIER | 50BA006510 | 418G29457 | 5 | |
| 1B 205A | TRANE COND | SAHE B306-B | C82M-06350 | 6 | |
| MEZZANINE: | | | | | |
| AUDITORIUM | McQUAY | AHR 046CD | E300531 | 46 | 0,L,C,Y |
| AUDITORIUM | McQUAY AIR HANDLER (1) | LSL 214CY-2 | 996284020 | | |
| | McQUAY AIR HANDLER (2) | LSL 214CY-2 | 996254 | | |
| 2D FLOOR: | | | | | |
| 2C 331 | CHRYSLER | 3725-01R | 52A7307 | 25 | 0 |
| 2C 325,TOWER 3 | TRANE | SWUB-3756-8 | J39B12337 | 7.5 | |
| 2D 337 | HIDEAWAY PKG UNIT | MDXW/C2(PN 531901) | 68979-371 | 2 | |
| 3DR FLOOR: | | | | | |
| 3D 114 | COPELAND | WZW H-500 TFC-011 | 08J81 | 5 | |
| (COOLING TOWER 1) | COPELAND | W2WH-1500 THC-001 | 19J81 | 15 | 0 |
| 4TH FLOOR: | | | | | |
| 4C 333 (Condenser on roof) | CHRYSLER | 3711-0LR | 7E00229 | 12 | |
| 4C 336 (Condenser on roof) | CHRYSLER | 1209-03R | E222952 | 10 | |
| MACHINE ROOMS: | | | | | |
| MR 13 REPRO | AC #1 COMPRESSOR & AIR HANDLING UNIT | | | 20 | 0 |

RECURRING WORKLOAD

AIR COMPRESSOR UNITS

LEDGEND: EH = ELECTRIC HEAT
NEH = NO ELECTRIC HEAT

| BLDG NUMBER | LOCATION | MANUFACTURER | SERIAL NUMBER | MODEL NUMBER | TAG NO. | |
|---|---|---|---|---|---|---|
| 906 | | QUINCY | Z2-100-516391 | N/A | | DRY SPRINKLER SYSTEM (EH) |
| 975 | | QUINCY | Z8-4-207668 | N/A | 397 | DRY SPRINKLER SYSTEM (EH) |
| 975 | | QUINCY | Z8-4-178486 | N/A | 396 | DRY SPRINKLER SYSTEM (EH) |
| 1000 | | SPEED AIR | 06051 | 463449 | 410 | DRY SPRINKLER SYSTEM (EH) |
| 1076 | | SPEED AIR | 021137L-034173 | 32419F | | |
| 1103 | | SPEED AIR | 040187L | 092981 | | DRY SPRINKLER SYSTEM (NEH) |
| 1105 | | GENERAL | 4776 | 45K82-1T | | DRY SPRINKLER SYSTEM (NEH) |
| 1120 | | GE EQUIPMENT | 56979WL | 10825 | 408 | |
| 1122 | | NAPA | 4313 | 82-278-EHAT | | |
| 1122 | | NAPA | 4307 | 82-273-HAT | | |
| 1150 | | GENERAL CABLE | RE-5023 | 3100 C.S. | 431 | |
| 1150 | | PURE GAS | D239 | 1500 | 432 | |
| 1206 | | A.C.F | 1185-4443 | ACF-COS-036D3 | 434 | |
| 1209 | | INGERSOLL RAND | 30T-590769 | 2-23401 | | |
| 1210 | | QUINCY | 5015943 | FF108AD | | |
| 1220 | | AIR STREAM | 896540 | 20IT | 435 | |
| 1220 | | QUINCY | | | 408 | |
| 2000 | | DAYTON | RG00335A | 9K456A | 443 | DRY SPRINKLER SYSTEM (NEH) |
| 2000 | | CRAFTSMAN | 1.5 HP 12 GAL | 08M36 | | DRY SPRINKLER SYSTEM (NEH) |
| 2000 | | JOHNSON SYSTEM | | Z2-15-650990 | 442 | |
| 2502 | | DAYTON | 15924 K82 | 2Z781 | 436 | DRY SPRINKLER SYSTEM (EH) |
| 2503 | | DAYTON | 15924 J84 | 2Z781 | 437 | DRY SPRINKLER SYSTEM (EH) |
| 2504 | | DAYTON | 15924 K82 | 2Z781 | 438 | DRY SPRINKLER SYSTEM (EH) |
| 2506 | | ITT PNEUMOTIVE | 160639P | GH-610 | | |
| 2506 | | MAGNA FORCE | 207243 | 64A100-14 | | |
| 2506 | | DAYTON | 15924 D84 | 2Z781 | 439 | DRY SPRINKLER SYSTEM (EH) |
| 2507 | | AMERICAN AIR COMP | 28462 | 3A114 | 440 | DRY SPRINKLER SYSTEM (EH) |
| 2525 | | SPEED AIR | | 3Z495A-2 | | |
| 2564 | | INGERSOLL RAND | 30T287187 | 242D7.5 | | |
| 2700 | MR 21 | PURE GAS AIR DRYER | 2009 | 1500 | | |
| 2700 | BLR RM | INDUSTRIAL AIR | 6085 | C1023E120H | | |
| 2700 | BLR RM | INDUSTRIAL AIR | 6095 | C1023E120H | | |
| 2700 | BLR RM | DEVILBISS | E1582 | BDP5006 | | |
| 2700 | 1E 124 | QUINCY | 216-33-294317 | 216-36 | 387 | |
| 2700 | 1E 124 | GBAIR CO. | 621640 | | 388 | |
| 2704 | | WORTHINGTON | AJ644 | ZT1 | 446 | |
| 2705 | | ROBERTSHAW | 718375L | 106 | 444 | |

RECURRING WORKLOAD

EXHAUST VENTILATORS (MYER CENTER, BLDG 2700)

KIN FACTOR KINETIE SCRUBBER NEAR PLATFORM #4 AND TOWER #2
SIZE F SER-Y-69042 - MOTOR PACEMAKER MOD 193 55L-1 TYPE CE 48

PASSENGER ELEVATOR #2 - EV CENTRI VENT MOD - MISSING; SER - MISSING

EV PLATFORM WEST 17 DUALL INDUSTREIES INC, OWOSSO, MICHIGAN SERIAL #5228

TOTAL NUMBER OF EXHAUST VENTILATORS AT MYER CENTER: 132

RECURRING WORKLOAD

EXHAUST VENTILATORS (MYER CENTER, BLDG 2700)

| UNIT | SWITCH LOCATION | FAN LOCATION | MOTOR HP |
|---|---|---|---|
| EV #124 | 4D 304 | STATION #9 | 0.25 |
| EV #125 | 4D 236 | STRAGLER | 1.25 |
| EV #126 | MR #43 | STATION #7 | 0.75 |
| EV #127 | MR #43 | STATION #8 | 0.75 |
| EV #128 | MR #44 | STATION #11 | 0.75 |
| EV #129 | MR #44 | STATION #12 | 0.75 |
| EV #130 | MR #45 | STATION #15 | 0.75 |
| EV #131 | MR #45 | STATION #16 | 0.75 |
| EV #132 | | | |

EV - GENERAL RESOUCRE MOD EIB245N - SER #208448 EXHAUST CANOPY #9

AIR SHAFT NEAR EXHAUST CANOPY 9 & 7 GREEN HECK MOD SWB 16-20 - SER 36007507

EXHAUST CANOPY #2 - GENERAL RESOURCE MOD EIB132M - SER 208446 - ID #6

EXHAUST CANOPY #2 - GENERAL RESOURCE MOD EIE122J - SER 208447
CENTRI VENT - MOD QE 17E - SER THA 29S213

EXHAUST CANOPY #8 - GENERAL RESOURCE MOD EIE122L - SER 208445

CANOPY #8 - AIR SHAFT NEAR EXHAUST GREEN HECK MOD SWB-16015 - SER 36007505

EXHAUST CANOPY #6 - CENTRI VENT MOD QE 245K - SER THA298220 ID 15
CENTRI VENT MOD QEL 000 - SER SHA 295251
GREEN HECK MARKER-4 MOD SUE-16-20 - SER 36007504

RECURRING WORKLOAD

EXHAUST VENTILATORS (MYER CENTER, BLDG 2700)

| UNIT | SWITCH LOCATION | FAN LOCATION | MOTOR HP |
|---|---|---|---|
| EV #90 | 1E 308 | STATION #9 | 3 |
| EV #91 | 1B 308 | STATION #9 | 2 |
| EV #92 | 1E 308 | STATION #9 | 0.75 |
| EV #93 | 1E 307 | STATION #9 | 2 |
| EV #94 | SUB-STATION | 1ST FLOOR | |
| EV #95 | 1E 312 | 1E 312 | |
| EV #96 | 1E 316 | STATION #9 | 0.5 |
| EV #97 | 1E 400 | STATION 12 | 0.5 |
| EV #98 | SUB-STATION | BASEMENT | 1.5 |
| EV #99 | | | |
| EV #100 | | | |
| EV #101 | 1E 504 | STATION #16 | 0.5 |
| EV #102 | 2D 210 | STATION #6 | 0.25 |
| EV #103 | 2D 210 | STATION #6 | 0.5 |
| EV #104 | 2D 209 | STATION #6 | 3.5 |
| EV #105 | 2C 215 | STATION #7 | 0.25 |
| EV #106 | 2C 305 | STATION #8 | 0.166666 |
| EV #107 | 2D 306 | STATION #9 | 0.25 |
| EV #108 | 2D 310 | STATION #9 | 0.5 |
| EV #109 | 2D 310 | STATION #9 | 0.166666 |
| EV #110 | 2D 310 | STATION #9 | 0.166666 |
| EV #111 | 2D 309 | STATION #9 | 0.75 |
| EV #112 | 2D 309 | STATION #9 | 0.25 |
| EV #113 | 2D 309 | STATION #9 | 0.5 |
| EV #114 | 2C 321 D.R. | 2C 321 D.R. | |
| EV #115 | 3D 309 | 3D 309 | |
| EV #116 | | | |
| EV #117 | 3D 326 | STATION #10 | 0.5 |
| EV #118 | 3D 416E | STATION #15 | 0.25 |
| EV #119 | 3D 416A | STATION #14 | 0.25 |
| EV #120 | 4D 209 | STRAGLER | 3.75 |
| EV #121 | 4D 211 | STATION #6 | 0.25 |
| EV #122 | 4D 213 | STRAGLER | |
| EV #123 | 4D 301 | STATION #8 | 0.333333 |

RECURRING WORKLOAD

EXHAUST VENTILATORS (MYER CENTER, BLDG 2700)

| UNIT | SWITCH LOCATION | FAN LOCATION | MOTOR HP |
|---|---|---|---|
| EV #50 | 4C 139 | STATION #1 | 1 |
| EV #51 | 4D 103D | STATION #1 | 0.333333 |
| EV #52 | 4D 134 | STATION #4 | 0.75 |
| EV #53 | MR #41 | STATION #1 | 2.5 |
| EV #54 | MR #42 | STATION #4 | 2.5 |
| EV #56 | BR LATRINE | STATION #10 | 0.25 |
| EV #57 | MR #12 | MR #12 | 0.05 |
| EV #58 | MR #12 | MR #12 | 5 |
| EV #59 | 1E 208 | STATION #6 | 5 |
| EV #60 | 1B 205 | STATION #6 | 5 |
| EV #61 | 1B 206 | STATION #6 | 5 |
| EV #62 | 1E 205 | STATION #6 | 0.333333 |
| EV #63 | 1E 207 | STATION #6 | 0.04 |
| EV #64 | 4D 205 | STATION #2 | 2.5 |
| EV #65 | 1E 112 | STATION #2 | 1.5 |
| EV #66 | 2C 141 | STATION #5 | 3 |
| EV #67 | 2C 143 | STATION #5 | 0.5 |
| EV #68 | SUB-STATION | | 0.25 |
| EV #69 | MENS LATRINE (4D 301) | STATION #8 | 1.5 |
| EV #71 | MENS LATRINE (4D 501) | STATION #16 | 1.5 |
| EV #72 | MENS LATRINE (1E 318) | STATION #9 | 0.75 |
| EV #73 | MENS LATRINE (OA 411) | STATION #14 | 0.75 |
| EV #75 | OA 330 | STATION #11 | 2 |
| EV #76 | OA 330 | STATION #11 | 0.75 |
| EV #77 | OA333E | STATION #11 | 0.5 |
| EV #78 | OA333E | STATION #11 | 0.75 |
| EV #79 | KITCHEN E.S. | STATION #13 | 7.5 |
| EV #82 | SUB-STATION | BASEMENT | 1.5 |
| EV #83 | 1E 211 | 1E 211 | |
| EV #84 | 1E 211 | STATION #7 | 3 |
| EV #85 | 1E 211 | STATION #7 | 0.333333 |
| EV #86 | 1E 302 | STATION #7 | 2 |
| EV #87 | 1E 302 | STATION #7 | 3 |
| EV #88 | 1E 302 | STATION #8 | 1 |
| EV #89 | 1E 302 | STATION #9 | 2 |

RECURRING WORKLOAD

EXHAUST VENTILATORS (MYER CENTER, BLDG 2700)

| UNIT | SWITCH LOCATION | FAN LOCATION | MOTOR HP |
|---|---|---|---|
| EV #1 | MENS LATRINE (4TH FLOOR) | STRAGLER | 2 |
| EV #2 | MENS LATRINE (4TH FLOOR) | STATION #4 | 1 |
| EV #7 | REPRODUCTION | STRAGLER | |
| EV #9 | 3C 207 | STATION #5 | 0.5 |
| EV #10 | 2C 135 | STATION #4 | 0.333333 |
| EV #11 | 2C 133 | STATION #3 | 0.5 |
| EV #12 | 2D 129B | STATION #3 | 0.333333 |
| EV #13 | 2D 129A | STATION #3 | 0.333333 |
| EV #14 | 2D 137 | STATION #3 | 0.333333 |
| EV #15 | 2D 125 | STATION #3 | 0.333333 |
| EV #16 | 2D 123B | STATION #3 | 2 |
| EV #17 | 2D 135A | STATION #3 | 0.333333 |
| EV #18 | 3C 203 | STATION #5 | 0.333333 |
| EV #19 | 3C 201 | STATION #5 | 0.333333 |
| EV #20 | 3D 200 | STATION #5 | 0.333333 |
| EV #21 | 2C 141 | STATION #4 | 2 |
| EV #22 | 2C 207 | STATION #6 | 2 |
| EV #23 | 2D 205 | STATION #6 | 0.333333 |
| EV #24 | 2D 207 | STATION #6 | |
| EV #25 | 2D 207 | STATION #6 | 3 |
| EV #26 | 2C 143 | STATION #5 | 1.5 |
| EV #27 | 4C 203 | STATION #5 | 1.5 |
| EV #28 | 4C 203 | STATION #5 | 1.5 |
| EV #29 | 4C 201 | STATION #5 | 0.333333 |
| EV #30 | 4C 203 | STATION #5 | 0.333333 |
| EV #31 | 4D 202 | STATION #5 | 0.333333 |
| EV #32 | 4D 202 | STATION #5 | 0.333333 |
| EV #33 | 4D 202 | STATION #5 | 1 |
| EV #35 | 4C 143 | STATION #4 | 1.5 |
| EV #37 | 4D 139B | STATION #5 | 1 |
| EV #38 | 4D 201 | STATION #5 | 1 |
| EV #39 | 4D 132 | STATION #4 | 0.5 |
| EV #40 | 4C 139 | STATION #4 | 1.5 |
| EV #41 | 4D 132 | STATION #4 | 0.333333 |
| EV #42 | 4D 134 | STATION #4 | 0.333333 |
| EV #43 | 4D 130 | STATION #3 | 1 |
| EV #44 | 4C 129 | STATION #3 | 1 |
| EV #45 | 4C 131 | STATION #3 | 0.333333 |
| EV #46 | 4C 113 | STATION #2 | 0.333333 |
| EV #47 | 4C 110 | STATION #2 | 0.333333 |
| EV #48 | 4C 109B | STATION #1 | 0.333333 |
| EV #49 | 4D 103 | STATION #1 | 2 |

RECURRING WORKLOAD

SUPPLY VENTILATORS (MYER CENTER, BLDG 2700)

| UNIT | CONTROL LOCATION | FAN LOCATION | HP FAN MOTOR |
|---|---|---|---|
| SV #1 | RM 1E 114 | RM 1E 114 | 1 |
| SV #2 | RM 1E 108 | RM 1E 108 | 2 |
| SV #3 | RM 1E | RM 1E 129 | 3 |
| SV #13 | BOILER ROOM | BOILER ROOM | 1.5 |
| SV #14 | BOILER ROOM | BOILER ROOM | 1.5 |
| SV #15 | BOILER ROOM | BOILER ROOM | 1.5 |
| SV #16 | BOILER ROOM | BOILER ROOM | 1.5 |
| SV #18 | RM 1E 206 | RM 1E 206 | 3 |
| SV #19 | RM 1E 206 | RM 1E 206 | 1 |
| SV #23 | RM 0A 330 | RM 0A 330 | 1 |
| SV 25 | RM 1E 211 | RM 1E 211 | 1 |
| SV #26 | RM 1E 302 | RM 1E 302 | 1 |
| SV #27 | RM 1E 308 | RM 1E 308 | 1 |
| SV #29 | MEN'S LATRINE | MEN'S LATRINE | 1 |
| SV #33 | RM 2C 317 | MR #23 | 1.5 |
| SV #37 | RM 3C 307 | MR #33 | 5 |
| SV #41 | RM 4C 331A | RM 4C 331A | 5 |
| SV #42 | RM 4C 403A | RM 4C 403A | 5 |

TOTAL NUMBER OF SUPPLY VENTILATORS AT MYER CENTER: 18

# RECURRING WORKLOAD

## COOLING TOWER LOCATIONS

| BLDG NUMBER | LOCATION | MAKE | SERIAL NUMBER | MODEL NUMBER | TONNAGE | UNITS |
|---|---|---|---|---|---|---|
| 283 | | MARLEY | 4415 | 4777 | 7.5 | |
| 291 | | MARLEY | N/A | 46752022 | 30 | |
| 500 | | BARTIMORE AIR COIL | FXT133 | 323605-D | 60 | |
| 552 | | MARLEY | N/A | 4715-338 | 15 | |
| 814 | | MARLEY | | 47201228 | 20 | |
| 1207 | | EVAPCO | 867527 | LST-10-181 | 450 | |
| 1207 N | | MARLEY | N/A | 4765-930 | 30 | |
| 1207 S | | MARLEY | N/A | 4725-611 | 30 | |
| 1212 | | HALSTEAD & MITCHELL | | | 25 | |
| 1215 | | RECOLD | QDE2520 | 103429 | 25 | |
| 2700 | ROOF COIL 600 GPH | THERMAL CARE/MAYER 8000 SERIES | | | 200 | COOLING TOWER |
| 2700 | ROOF COIL 600 GPH | THERMAL CARE/MAYER 8000 SERIES | | | 200 | COOLING TOWER |
| 2700 | ROOF COIL 633 GPH | BACTIMORE AIR | | | 211 | COOLING TOWER |
| 2700 | ROOF COIL 633 GPH | BACTIMORE AIR | 2416C | 791560D | 211 | COOLING TOWER |
| 2706 | | BALCCTIMORE AIR COIL (4 CELLS) | 4-2419C | 8242-10-D | 200 | |
| 2708 | | BALTIMORE AIR COIL | 85-6992D | FXT-250 | 240 | |
| 2713 | | BALTIMORE AIR COIL (3 CELLS) | 89400765 | 3268 30MS | 1950 | |
| 9040 | | MARLEY | 2413 | 4429 | 50 | |
| 9042 | | ACQUA TOWER COOLING TOWER | | 4842 1079C | 50 | |

TOTAL NUMBER OF COOLING WATER TOWERS: 19

TOTAL TONNAGE FOR COOLING WATER TOWERS: 4,004.50

FWS: HEATING, VENTILATION, AIR CONDITIONING AND REFRIGERATION

16-Jun-93

RECURRING WORKLOAD
MYER CENTER
AIR CONDITIONING
FOR
COMPUTER ROOM FACILITIES
(MONTHLY VISITS)

| ROOM/LOCATION | | MANUFACTURER | SERIAL NUMBER | SIZE | MODEL NUMBER | ID | # PUMPS |
|---|---|---|---|---|---|---|---|
| 4C 405 | AIR SHAFT NEAR EH CANOPY #8 | LIEBERT VOLTAGE 460, PH3 | 104472D | 13 | FE 192GA00 | AC-14 | |
| 4C 405 | EH CANOPY #2 | LIEBERT VOLTAGE 460, PH3 | 104472L | 7 | FE 110G-A00 | AC-19 | |
| 4C 405 | EH CANOPY #2 | LIEBERT VOLTAGE 460, PH3 | 104472E | 13 | FE 192G-A00 | AC-15 | |
| 4C 405 | EH CANOPY #2 | LIEBERT DRY COOLER | 85090066 | | DSO 174A | DC #19 | |
| 4C 405 | EH CANOPY #2 | LIEBERT DRY COOLER | 85090071 | | DSO 260A | DC #15 | |
| 4C 417 | AIR SHAFT NEAR EH CANOPY #9 | LIEBERT VOLTAGE 460, PH3 | 104472F | 13 | FE192G-A00 | AC17 | |
| 4C 417 | AIR SHAFT NEAR EH CANOPY #9 | LIEBERT VOLTAGE 460, PH3 | 1044726 | 13 | FE 192G-A00 | AC18 | |
| 4C 417 | AIR SHAFT NEAR EH CANOPY #9 | LIEBERT VOLTAGE 460, PH3 | 104472M | 5 | FE 72G-A00 | AC16 | |
| 4C 417 | AIR SHAFT NEAR EH CANOPY #9 & | LIEBERT DRY COOLER | 85090063 | | DDO 112A | #16 | 1 |
| 4C 417 | AIR SHAFT NEAR EH CANOPY #9 & | LIEBERT DRY COOLER | 85090537 | | DDO 260A | #18 | 1 |
| 4C 417 | AIR SHAFT NEAR EH CANOPY #9 & | LIEBERT DRY COOLER | 85090077 | | DDO 260A | DC #17 | 1 |
| 4D 204 | | EDPAC | 66000-001A | 9 | CDIW-09 | | |
| 4D 204 | | EDPAC | 65907-001A | | | | |
| 4D 208# | | DATA AIRE | 91-1295A | 16 | DAGD-2034 | | |
| 4D 210# | | DATA AIRE | 91-0236A | 5 | DAGD-0634 | | |
| 4D 214# | | DATA AIRE | 91-0235A | 5 | DAGD-1034 | | |
| # DRY COOLER | PLATFROM NO. 7 | BGNH | TRC 1820 | | DFS0403G | | |
| 4D 308 | COOL TOWER #4 | LIEBERT | P-12522 LR-253122 | 9 | CUU9W | | |
| 4D 324 | EH CANOPY #8 | LIEBERT DRY COOLER | 85090070 | | DDO 260A | DC#10 | 1 |
| 4D 324 | EH CANOPY #8 | LIEBERT VOLTAGE 460, PH3 | 104472B | 13 | FE 192G-A00 | AC-10 | |
| 4D 326 | EH CANOPY #8 | LIEBERT VOLTAGE 460, PH3 | 1044721 | 7 | FE 11GG-A00 | AC-9 | |
| 4D 326 | EH CANOPY #8 | LIEBERT DRY COOLER | 85090068 | | DSO 174A | DC 9 | 1 |
| 4D 328 | EH CANOPY #8 | LIEBERT DRY COOLER | 85090067 | | DSO 174A | DC#11 | 1 |
| 4D 328 | EH CANOPY #8 | LIEBERT | 104472H | 7 | FE 11GG-A00 | AC-11 | |
| 4D 330 | | LIEBERT | 1044 72K | | 7FE 110G-A00 | AC-12 | |
| 4D 330 | EH CANOPY #8 | LIEBERT DRY COOLER | 85090064 | | DSO 174A | DC#12 | 1 |
| MR 33 | | YORK | E0189161 | 60 | LCH360A23PA | | |

(2 Air handlers - one in Rm 3C 321; one A/H/U in MR 33)

| | |
|---|---|
| TOTAL NUMBER OF | 31 |
| TOTAL TONNAGE: | 410 |
| TOTAL NUMBER OF | 16 |

RECURRING WORKLOAD

TRANE CENTRAVAC UNITS, BLDG 2706
AND AIR HANDLERS, BLDG 2700 (MYER CENTER)

| LOCATION | MAKE | MODEL NUMBER | SERIAL NUMBER | UNITS |
|---|---|---|---|---|
| THIRD FLOOR: | | | | |
| MR-31 | TRANE CLIMATE | S2B000014 | K83C86109 | AHC-1A |
| | TRANE CLIMATE | S2B000014 | K83686108 | AH3-1 |
| | CENTURI MASTER | NA | NA | AH3-1 |
| | CENTURI MASTER | NA | NA | AHC-1A |
| MR-32 | TRANE CLIMATE | S20148 | K83C86110 | AHU-3-2 |
| | TRANE CLIMATE | S20148 | K83C86111 | AHU-3-2-A |
| | CENTURI MASTER | XB137K | NA | RF-3-2 |
| | CENTURI MASTER | XB137K | NA | RF-3-2-A |
| MR-33 | TRANE CLIMATE | S2B000014 | K8328112 | AH-3-3 |
| | CENTURI MASTER | XB137K | | RF-3-3 |
| MR-35 | TRANE CLIMATE | S2014B0 | K83C36114 | AHU-3-5 |
| | CENTURI MASTER | XB137K | | RF-3-5 |
| | TRANE CLIMATE | S2014B0 | K83C36115 | AHU-3-5-A |
| | CENTURI MASTER | XB137K | | RF-R-3-5-A |
| ROOF: | | | | |
| ROOF | TRANE CLIMATE | S1014B | K83C36116 | AHU-R-1 |
| ROOF | CHANGER | QB245L | TH298222 | RF-R-1 |
| ROOF | TRANE CLIMATE | S2J014B | K832C36117 | AHU-R-2 |
| ROOF | CHANGER | QB200L | TH233217 | RF-R-2 |
| ROOF | TRANE CLIMATE | S2025B | K83C86118 | AHU-R-3 |
| ROOF | CHANGER | QB245M | THA298223 | RF-R-3 |
| ROOF | TRANE CLIMATE | S2025B | K83C36119 | AHU-R-4 |
| ROOF | CHANGER | SQB200K | THA298218 | RF-R-4 |
| ROOF | TRANE CLIMATE | S2024D | K836120 | AHU-R-5 |
| ROOF | CHANGER | COVERED | THA298219 | RF-R-5 |
| ROOF | TRANE CLIMATE | S2014B | K83C121 | AHU-R-6 |
| ROOF | CHANGER | QB245M | THA298224 | RF-R-6 |

FMS: HEATING, VENTILATION, AIR CONDITIONING
AND REFRIGERATION

16-Jun-93

RECURRING WORKLOAD
MYER CENTER
AIR CONDITIONING
FOR
COMPUTER ROOM FACILITIES
(MONTHLY VISITS)

| ROOM/LOCATION | | MANUFACTURER | SERIAL NUMBER | SIZE | MODEL NUMBER | ID | # PUMPS |
|---|---|---|---|---|---|---|---|
| C4 (East side of 2700) (Air handler Rm 1B 322 ceiling) | | N/A | N/A | 15 | N/A | | |
| 0A334 (FRONT) | | LEIBERT DRY COOLER | 85090073 | | DSO 174A | DC 1 | |
| 0A334 (FRONT) | | LIEBERT DRY COOLER | 104472A | 13 | FE 192G-A00 | AC 1 | |
| 0A336 (FRONT) | | LEIBERT DRY COOLER | 85090149 | | DSO 260A | DC 2 | |
| 0A336 (FRONT) | | LIEBERT DRY COOLER | 104472J | 7 | FE 1105-A00 | AC 2 | |
| 2C 106 | | DATAC | 025PD009 | 5 | CCT-06WH | | |
| 2C 235 | TOWER #4 | LIEBERT | P03660 | 5 | CU 69W | | |
| 2C 405 | TOWER #4 | DATAC | 3601D006 | 20 | CCT-20W2 | | |
| 2C 407 | TOWER #5 | DATAC | 3601D005 | 20 | CCT-20W2 | | |
| 3C 141 | (Condenser on roof) | TRANE | C81C29883 | 6 | RAVC-B626A | | |
| 3C 143 | COOL TOWER #2 | LIEBERT | 108567A | 7 | FH86W-C00 | | |
| 3D 402 | EH CANOPY #8 | LIEBERT DRY COOLER | 85050742 | | DSO 174A | #4 | 1 |
| 3D 402 | EH CANOPY #8 | LIEBERT DRY COOLER | 85050741 | | DSO 174A | #5 | 1 |
| 3D 402 | EH CANOPY #8 | LIEBERT VOLTAGE 460, PH3 | 103881A | 7 | FE 11060-A00 | #4 | |
| 3D 402 | EH CANOPY #8 | LIEBERT VOLTAGE 460, PH3 | 103881B | 7 | FE 11060-A00 | #5 | |
| 3D 404 | EH CANOPY #2 | LIEBERT DRY COOLER | 85050771 | | DSO 260A | RF-3-3 | 1 |
| 3D 404 | EH CANOPY #2 | LIEBERT VOLTAGE 460, PH3 | 103881F | 13 | FE 192G-A00 | 3 | |
| 3D 406 | EH CANOPY #10 | LIEBERT VOLTAGE 460, PH3 | 103881D | 7 | FE 11GG-A00 | 2 | |
| 3D 406 | EH CANOPY #10 | LIEBERT DRY COOLER | 85050740 | | DSO 174A | #RF-2-2 | |
| 3D 406 | EH CANOPY #2 | LIEBERT DRY COOLER | 85050632 | | DSO 174A | #RF-1-1 | 1 |
| 3D 406 | EH CANOPY #2 | LIEBERT VOLTAGE 460, PH3 | 103881C | 7 | FE 11GG-A00 | #1 | |
| 3D 409 | | LIEBERT | 103881 | 7 | FE116G | 10 | 1 |
| 3D 410 | EH CANOPY #2 | LIEBERT VOLTAGE 460,PH3 | 103881G | 13 | FE192G-A00 | 9 | |
| 3D 410 | EH CANOPY #2 | LIEBERT DRY COOLER | 85050772 | | DSO 260A | #9 | 1 |
| 3D 412 | EH CANOPY #10 | LIEBERT DRY COOLER | 85050775 | | DSO 310A | #8 | 1 |
| 3D 412 | EH CANOPY #10 | DATAC VOLTAGE 460, PH3 | 103881J | 17 | FE240G-A00 | | |
| 3D 412 | EH CANOPY #9 | DATAC VOLTAGE 460, PH3 | 1038814 | 17 | FE204G-A00 | 9 | |
| 3D 412 | EH CANOPY #9 | LIEBERT DRY COOLER | 85050773 | | DSO 310A | #6 | |
| 4C 205* | | DATA AIR | 91-1296-A | 9 | DAGA 1032 | | |
| 4C 209* | | DATA AIR | | | | | |
| 4C 211* | | | | | | | |
| 4C 213* | | | | | | | |
| * DRY COOLER | PLATFORM #7 | BOHN DRY COOLER | TRC 1819 | | DFS0403G | | |
| 4C 405 | AIR SHAFT NEAR EH CANOPY #8 | LIEBERT DRY COOLER | 85090093 | | DDO 260A | #14 | 1 |
| 4C 405 | AIR SHAFT NEAR EH CANOPY #8 | DATAC VOLTAGE 460, PH3 | 104U72C | 13 | FE 192GA00 | AC-13 | |
| 4C 405 | AIR SHAFT NEAR EH CANOPY #8 | LIEBERT DRY COOLER | 85090120 | | DDO 260A | DC#13 | 1 |

16-Jun-93

RECURRING WORKLOAD

RECURRING WORKLOAD

MYER CENTER AIR CONDITIONING
FOR
COMPUTER ROOM FACILITIES

| | |
|---|---|
| C4 | SEE COMPUTER ROOM FACILITY LIST |
| 0A334 | SEE COMPUTER ROOM FACILITY LIST |
| 0A336 | SEE COMPUTER ROOM FACILITY LIST |
| MR 33 | SEE COMPUTER ROOM FACILITY LIST |
| 2C 405 | SEE COMPUTER ROOM FACILITY LIST |
| 2C 407 | SEE COMPUTER ROOM FACILITY LIST |
| 3C 141 | SEE COMPUTER ROOM FACILITY LIST |
| 3C 141 | SEE COMPUTER ROOM FACILITY LIST |
| 3D 402 | SEE COMPUTER ROOM FACILITY LIST |
| 3D 402 | SEE COMPUTER ROOM FACILITY LIST |
| 3D 404 | SEE COMPUTER ROOM FACILITY LIST |
| 3D 406 | SEE COMPUTER ROOM FACILITY LIST |
| 3D 406 | SEE COMPUTER ROOM FACILITY LIST |
| 3D 409 | SEE COMPUTER ROOM FACILITY LIST |
| 3D 410 | SEE COMPUTER ROOM FACILITY LIST |
| 3D 412 | SEE COMPUTER ROOM FACILITY LIST |
| 3D 412 | SEE COMPUTER ROOM FACILITY LIST |
| 3D 412 | SEE COMPUTER ROOM FACILITY LIST |
| 4C 205 | SEE COMPUTER ROOM FACILITY LIST |
| 4C 209 | SEE COMPUTER ROOM FACILITY LIST |
| 4C 211 | SEE COMPUTER ROOM FACILITY LIST |
| 4C 213 | SEE COMPUTER ROOM FACILITY LIST |
| 4C 405 | SEE COMPUTER ROOM FACILITY LIST |
| 4C 405 | SEE COMPUTER ROOM FACILITY LIST |
| 4C 405 | SEE COMPUTER ROOM FACILITY LIST |
| 4C 405 | SEE COMPUTER ROOM FACILITY LIST |
| 4C 417 | SEE COMPUTER ROOM FACILITY LIST |
| 4C 417 | SEE COMPUTER ROOM FACILITY LIST |
| 4C 417 | SEE COMPUTER ROOM FACILITY LIST |
| 4D 204 | SEE COMPUTER ROOM FACILITY LIST |
| 4D 208 | SEE COMPUTER ROOM FACILITY LIST |
| 4D 210 | SEE COMPUTER ROOM FACILITY LIST |
| 4D 214 | SEE COMPUTER ROOM FACILITY LIST |
| 4D 308 | SEE COMPUTER ROOM FACILITY LIST |
| 4D 324 | SEE COMPUTER ROOM FACILITY LIST |
| 4D 326 | SEE COMPUTER ROOM FACILITY LIST |
| 4D 328 | SEE COMPUTER ROOM FACILITY LIST |

16-Jun-93 RECURRING WORKLOAD

| | | | | | |
|---|---|---|---|---|---|
| MR 15 | AC #11 COMPRESSOR & AIR HANDLING UNIT | | | 30 | 0 → ITO 91-0268 |
| MR 21,TOWER 1 | TRANE (WATER COOLED) | RWUD020GCC0HNT1ROFBUG | U90G02687 | 20 | |
| MR 22,TOWER 2 | CARRIER (WATER COOLED) | 50BJ028-500 | B695710 | 25 | 0 |
| | (RM 2D 134 TO 126 & 2C 135 TO 125) | | | | |
| MR 22,TOWER 2 | CARRIER (WATER COOLED) | 30 HK 040 530 | P630537 | 20 | 0,L |
| MR 22 | AIR HANDLER (CHILLER) | AV-19 | 8714748 | | |
| | (RM 2D 140 TO 208 & 2C 141 TO 205) | | | | |
| MR 23 | TRANE | CCUA0156MB51CP5C5B361C | L78H16845 | 15 | 0,L |
| | (FAN COIL IN RMS 2C 319-317-315; 2D 320-318-316-314 & 321) | | | | |
| MR 23 | AC #13 COMPRESSOR & AIR HANDLING UNIT | 07EA022-520 | 2291J02584 | 20 | 0 |
| MR 23 | AC #14 COMPRESSOR & AIR HANDLING UNIT | | | 40 | 0 → ITO 91-0268 |
| MR 34 | CLIMATROL | LLD-7532-13-U | 67A72-N-54 | 75 | |
| MR 34 | TRANE CLIMATE | S2B0000 14 A/R | NA | | |
| MR 34 | CENTURI MASTER | XB137KRF3-4 | | | |
| MR 41 | AC #7 COMPRESSOR & AIR HANDLING UNIT | | | 40 | 0 → ITO-91-0268 |
| MR 43 | TRANE | TTA120B400AB | F16196175 | 10 | |
| MR 43 | AIR HANDLER UNIT TO TRANE UNIT - (CONDESNER NEAR PLATFORM #7; AIR HANDLER IN MR #43) | | | | |

TOTAL NUMBER OF AIR CONDITIONING UNITS (MYER CENTER): 27

TOTAL AIR CONDITIONING TONNAGE (MYER CENTER): ERR

RECURRING WORKLOAD

TRANE CENTRAVAC UNITS, BLDG 2706
AND AIR HANDLERS, BLDG 2700 (MYER CENTER)

| LOCATION | MAKE | MODEL NUMBER | SERIAL NUMBER | UNITS |
|---|---|---|---|---|
| OA LEVEL: | | | | |
| OA 418 | 5 AIR HANDLERS | | | |
| FIRST FLOOR: | | | | |
| BREEZEWAY (OVER ENTRY DOOR) - 2 UNITS | | | | CUH-1 |
| 1E 204 | MINI AUDITORIUM | | | AHU-2 |
| 1B 204 | MINI AUDITORIUM | | | RF-R-2 |
| 1E 322 | TRANE CLIMATE (SUSPENDED) | | K836809 | AHU-3 |
| | CENTURI MASTER | XB137K | | RF-3 |
| 1B 405 | TRANE CLIMATE | | | AHU-4 |
| 1B 405 | CENTURI MASTER | | | AF-R-4 |
| 1E 504 | 2 AIR HANDLERS (OVER STAIRWELL #10) | | | |
| AIR HANDLERS: | | | | |
| 1B 302 | CARRIER | 39BA060B12 | 861730094 | |
| 1E 302 | CARRIER | 39BA060B12 | 861730096 | |
| 1B 306 | CARRIER | 39BA060B12 | 861730098 | |
| 1E 306 | CARRIER | 39BA060B12 | 861730097 | |
| 1B 401 | CARRIER | 39BA060B12 | 861730095 | |
| SECOND FLOOR: | | | | |
| MR-21-A | TRANE CLIMATE | S28000014 | K83C8101 | AHU-2-1 |
| | CENTURI MASTER | XB137K | | AHU-2-1 |
| MR-22-A | TRANE CLIMATE | S28000014 | K8328102 | AHU-2-2 |
| | CENTURI MASTER | XB137K | | AHU-2-2 |
| MR-23 | TRANE CLIMATE | | | AHU-2-3 |
| | CENTURI MASTER | | | RF-2-3 |
| MR-24 | TRANE CLIMATE | S2014B0 | K83C86104 | AHU-2-4 |
| | CENTURI MASTER | XB137K | | RF-RF-2-4 |
| | TRANE CLIMATE | S2014C0 | K83C86104 | AHU-2-4-A |
| | CENTURI MASTER | XB137K | | RF-R-2-4-A |
| MR-25 | TRANE CLIMATE | S2025B0 | K83C86106 | AHU-2-5 |
| | CENTURI MASTER | XB137K | | RF-R-2-5 |
| | TRANE CLIMATE | S2014B0 | | RF-R-2-5-A |
| | CENTURI MASTER | XE137K | | AHU-2-5-A |

# Attachment 8.2

## Hope Road/Charles Wood Electric Bills

13

MAY 94

US ARMY FORT MONMOUTH
CAMP WOOD
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLD 173
FORT MONMOUTH NJ 07703

* NO PAYMENT DUE *

JERSEY CENTRAL P&L CO.
PO BOX 193
ALLENHURST NJ 07711-0193

H 21 805133050015 0000000000000000000006

US ARMY FORT MONMOUTH
HOPE RD
EATONTOWN NJ 07724

501 GRAND AVENUE
ASBURY PARK, NJ 07712

80 51 33 0500 1 5

GT - GENERAL SERVICE
TRANSMISSION VOLTAGE

ACTUAL METER READING

**THIS IS YOUR CURRENT BILL CALCULATION**

| | | |
|---|---|---|
| BASE CHARGE ON PEAK | $ | 114,451.63 |
| OFF PEAK | | 82,203.84 |
| ENERGY ADJ CHG @ $.002160- PER KWH | | 4,976.64CR |
| CURRENT PERIOD CHARGES | $ | 191,678.83 |

05/03/94 TO 06/01/94
FOR 29 DAYS

**PAYMENTS/CHARGES SINCE LAST BILL**

| | | |
|---|---|---|
| PREVIOUS BALANCE | $ | .00 |
| BALANCE AT BILLING | $ | .00 |
| CURRENT PERIOD CHARGES | | 191,678.83 |
| TRANSFER TO 635100000911 | | 191,678.83CR |
| AMOUNT DUE | | .00 |

| METER NUMBER | METER READING CURRENT | PREVIOUS | MULTIPLIER | KILOWATT HOURS USED | REGISTERED KW / KVAR | BILLING KW / KVAR |
|---|---|---|---|---|---|---|
| 50693195 G | 714 | 604 | 9000 | 990,000 ONPK | 4,957.2 | 4,957.2 |
| 50693195 G | 977 | 831 | 9000 | 1,314,000 OFFPK | 4,147.2 | 0.0 |
| 62018313 G | 1060 | 876 | 9000 | 1,656,000 RVAH | 2,991.6 | 2,991.6 |

2,304,000

PLEASE CONSERVE-HIGHER SUMMER RATES ARE IN EFFECT.

1-800-662-3115 1-908-531-3277 06/13/94 NO PAYMENT DUE

JUN94

7

US ARMY FORT MONMOUTH
CAMP WOOD
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLD 173
FORT MONMOUTH NJ 07703

* NO PAYMENT DUE *

JERSEY CENTRAL P&L CO.
PO BOX 193
ALLENHURST NJ 07711-0193

H

21 805133050015 000000000000000000006

US ARMY FORT MONMOUTH
HOPE RD
EATONTOWN NJ 07724

501 GRAND AVENUE
ASBURY PARK, NJ 07712

80 51 33 0500 1 5

GT - GENERAL SERVICE
TRANSMISSION VOLTAGE

ACTUAL METER READING

**THIS IS YOUR CURRENT BILL CALCULATION**

| | | |
|---|---|---|
| BASE CHARGE | ON PEAK | $ 165,355.64 |
| | OFF PEAK | 115,423.20 |
| OUTDOOR LIGHT | | 12.37 |
| ENERGY ADJ CHG @ $.002160- PER KWH | | 6,940.23CR |
| CURRENT PERIOD CHARGES | | $ 273,850.98 |

06/01/94 TO 06/30/94
FOR 29 DAYS

**PAYMENTS/CHARGES SINCE LAST BILL**

| | |
|---|---|
| PREVIOUS BALANCE | $ .00 |
| BALANCE AT BILLING | $ .00 |
| CURRENT PERIOD CHARGES | 273,850.98 |
| TRANSFER TO 635100000911 | 273,850.98CR |
| AMOUNT DUE | .00 |

| METER NUMBER | METER READING CURRENT | METER READING PREVIOUS | MULTIPLIER | KILOWATT HOURS USED | REGISTERED KW / KVAR | BILLING KW / KVAR |
|---|---|---|---|---|---|---|
| 50693195 G | 866 | 714 | 9000 | 1,368,000 ONPK | 6,976.8 | 6,976.8 |
| 50693195 G | 1182 | 977 | 9000 | 1,845,000 OFFPK | 5,925.6 | 0.0 |
| 62018313 G | 1283 | 1060 | 9000 | 2,007,000 RVAH | 3,880.8 | 3,880.8 |
| OUTDOOR LIGHT | | | | 65 | | |

3,213,000

PLEASE CONSERVE-HIGHER SUMMER RATES ARE IN EFFECT.

1-800-662-3115 1-908-531-3277 07/18/94 NO PAYMENT DUE

7

JERSEY CENTRAL POWER AND LIGHT COMPANY

US ARMY FORT MONMOUTH
CAMP WOOD

HOPE RD
EATONTOWN NJ
DIRECTOR OF PUBLIC WORK

DATE 1 JULY 1994

DISTRICT ASBURY PARK

ACCOUNT NO. 805133-0500-1 CX 5

ELECTRIC SERVICE FROM 06-01 TO 06-30 RATE 510

| MEASURED DEMAND | | DEMAND CHARGE | | | |
|---|---|---|---|---|---|
| | 6976.80 KW | KW @ | | $ | |
| ON PEAK | 6976.80 KW | 6976.80 KW @ | 9.22 | 64326.10 | |
| | | KW @ | | | |
| | | KW @ | | | $ 64326.10 |
| OFF PEAK | 5925.60 KW | RKVAH USE 2007000 | PF .87 | | |
| | | KVAR 3880.8 @ | .43 | | 1668.74 |

| KWH METER | ON PEAK | OFF PEAK | ENERGY CHARGE | | | |
|---|---|---|---|---|---|---|
| PRESENT | 866 | 1182 | 0 KWH @ | | $ 235.52 | |
| PREVIOUS | 714 | 977 | 1368000 KWH @ | .072460 | 99125.28 | ON PEAK |
| DIFFERENCE | 152 | 205 | 1845000 KWH @ | .062560 | 115423.20 | OFF PEAK |
| MULTIPLIER | 9000 | 9000 | KWH @ | | | |
| USE | 1368000 | 1845000 | KWH @ | | | |
| | | | KWH @ | | | |
| | | | KWH @ | | | |
| | | | KWH @ | | | |
| | | | KWH @ | | | 214784.00 |

ENERGY ADJUSTMENT CHARGE .002160-PER KWH 6940.08-

SUB TOTAL $

SUB TOTAL $ 273838.76

OUTDOOR AREA LIGHTING 12.22

TOTAL AMOUNT DUE $ 273850.98

1/ 13/ JUL 94

US ARMY FORT MONMOUTH
CAMP WOOD
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLD 173
FORT MONMOUTH NJ 07703

* NO PAYMENT DUE *

JERSEY CENTRAL P&L CO.
PO BOX 193
ALLENHURST NJ 07711-0193

H

21 805133050015 0000000000000000000006

US ARMY FORT MONMOUTH
HOPE RD
EATONTOWN NJ 07724

501 GRAND AVENUE
ASBURY PARK, NJ 07712

80 51 33 0500 1 5

GT - GENERAL SERVICE
TRANSMISSION VOLTAGE

ACTUAL METER READING

**THIS IS YOUR CURRENT BILL CALCULATION**

| | | | |
|---|---|---|---|
| BASE CHARGE | ON PEAK | $ | 184,700.06 |
| | OFF PEAK | | 150,331.68 |
| OUTDOOR LIGHT | | | 13.75 |
| ENERGY ADJ CHG @ $.002160- PER KWH | | | 8,709.29CR |
| CURRENT PERIOD CHARGES | | $ | 326,336.20 |

06/30/94 TO 08/02/94
FOR 33 DAYS

**PAYMENTS/CHARGES SINCE LAST BILL**

| | | |
|---|---|---|
| PREVIOUS BALANCE | $ | .00 |
| BALANCE AT BILLING | $ | .00 |
| CURRENT PERIOD CHARGES | | 326,336.20 |
| TRANSFER TO 635100000911 | | 326,336.20CR |
| AMOUNT DUE | | .00 |

| METER NUMBER | METER READING CURRENT | METER READING PREVIOUS | MULTIPLIER | KILOWATT HOURS USED | | REGISTERED KW / KVAR | BILLING KW / KVAR |
|---|---|---|---|---|---|---|---|
| 50693195 G | 1047 | 866 | 9000 | 1,629,000 | ONPK | 7,020.0 | 7,020.0 |
| 50693195 G | 1449 | 1182 | 9000 | 2,403,000 | OFFPK | 5,929.2 | 0.0 |
| 62018313 G | 1564 | 1283 | 9000 | 2,529,000 | RVAH | 3,960.0 | 3,960.0 |
| OUTDOOR LIGHT | | | | 75 | | | |

4,032,000

PLEASE CONSERVE-HIGHER SUMMER RATES ARE IN EFFECT.



1-800-662-3115 1-908-531-3277 08/18/94 NO PAYMENT DUE

JERSEY CENTRAL POWER AND LIGHT COMPANY

US ARMY FORT MONMOUTH
CAMP WOOD

HOPE RD
EATONTOWN NJ
DIRECTOR OF PUBLIC WORK

13

DATE AUGUST 1994

DISTRICT ASBURY PARK

ACCOUNT NO. 805133-0500-1 CX 5

ELECTRIC SERVICE FROM 06-30 TO 08-02 RATE 510

| MEASURED DEMAND | | DEMAND CHARGE | | | |
|---|---|---|---|---|---|
| | 7020.00 KW | KW @ | | $ | |
| ON PEAK | 7020.00 KW | 7020.00 KW @ | 9.22 | 64724.40 | |
| | | KW @ | | | |
| | | KW @ | | | $ 64724.40 |

OFF PEAK 5929.20 KW RKVAH USE 2529000 PF .87

KVAR 3960.0 @ .43 1702.80

| KWH METER | ON PEAK | OFF PEAK |
|---|---|---|
| PRESENT | 1047 | 1449 |
| PREVIOUS | 866 | 1182 |
| DIFFERENCE | 181 | 267 |
| MULTIPLIER | 9000 | 9000 |
| USE | 1629000 | 2403000 |

ENERGY CHARGE

| | | | | |
|---|---|---|---|---|
| 0 KWH @ | | $ 235.52 | | |
| 1629000 KWH @ | .072460 | 118037.34 | ON PEAK | |
| 2403000 KWH @ | .062560 | 150331.68 | OFF PEAK | |
| KWH @ | | | | |
| KWH @ | | | | |
| KWH @ | | | | |
| KWH @ | | | | |
| KWH @ | | | | |
| KWH @ | | | | 268604.54 |

ENERGY ADJUSTMENT CHARGE .002160-PER KWH 8709.12-

SUB TOTAL $

SUB TOTAL $ 326322.62

OUTDOOR AREA LIGHTING 13.58

TOTAL AMOUNT DUE $ 326336.20

AUG94

US ARMY FORT MONMOUTH
CAMP WOOD
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLD 173
FORT MONMOUTH NJ 07703

* NO PAYMENT DUE *

JERSEY CENTRAL P&L CO.
PO BOX 193
ALLENHURST NJ 07711-0193

H 21 805133050015 000000000000000000006

US ARMY FORT MONMOUTH
HOPE RD
EATONTOWN NJ 07724

501 GRAND AVENUE
ASBURY PARK, NJ 07712

80 51 33 0500 1 5

GT - GENERAL SERVICE
TRANSMISSION VOLTAGE

ACTUAL METER READING

| THIS IS YOUR CURRENT BILL CALCULATION | | | | PAYMENTS/CHARGES SINCE LAST BILL | | |
|---|---|---|---|---|---|---|
| BASE CHARGE | ON PEAK | $ | 158,741.17 | PREVIOUS BALANCE | $ | .00 |
| | OFF PEAK | | 115,986.24 | BALANCE AT BILLING | $ | .00 |
| OUTDOOR LIGHT | | | 13.75 | CURRENT PERIOD CHARGES | | 267,917.55 |
| ENERGY ADJ CHG @ $.002160- PER KWH | | | 6,823.61CR | TRANSFER TO 635100000911 | | 267,917.55CR |
| CURRENT PERIOD CHARGES | | $ | 267,917.55 | AMOUNT DUE | | .00 |
| 08/02/94 TO 08/31/94 | | | | | | |
| FOR 29 DAYS | | | | | | |

| METER NUMBER | METER READING CURRENT | PREVIOUS | MULTIPLIER | KILOWATT HOURS USED | REGISTERED KW / KVAR | BILLING KW / KVAR |
|---|---|---|---|---|---|---|
| 50693195 G | 1192 | 1047 | 9000 | 1,305,000 ONPK | 6,757.2 | 6,757.2 |
| 50693195 G | 1655 | 1449 | 9000 | 1,854,000 OFFPK | 5,598.0 | 0.0 |
| 62018313 G | 1787 | 1564 | 9000 | 2,007,000 RVAH | 3,823.2 | 3,823.2 |
| OUTDOOR LIGHT | | | | 75 | | |

3,159,000

PLEASE CONSERVE-HIGHER SUMMER RATES ARE IN EFFECT.



1-800-662-3115 1-908-531-3277 09/12/94 NO PAYMENT DUE

JERSEY CENTRAL POWER AND LIGHT COMPANY.

US ARMY FORT MONMOUTH
CAMP WOOD

HOPE RD
EATONTOWN NJ
DIRECTOR OF PUBLIC WORK

2

DATE AUGUST 1994

DISTRICT ASBURY PARK

ACCOUNT NO. 805133-0500-1 CK 5

ELECTRIC SERVICE FROM 08-02 TO 08-31 RATE 510

| MEASURED DEMAND | | DEMAND CHARGE | | |
|---|---|---|---|---|
| 6757.20 KW | KW @ | | $ | |
| ON PEAK 6757.20 KW | 6757.20 KW @ 9.22 | | 62301.38 | |
| | KW @ | | | |
| | KW @ | | | $ 62301.38 |
| OFF PEAK 5598.00 KW | RKVAH USE 2007000 PF .87 | | | |
| | KVAR 3823.2 @ .43 | | | 1643.97 |

| KWH METER | ON PEAK | OFF PEAK | ENERGY CHARGE | | | |
|---|---|---|---|---|---|---|
| PRESENT | 1192 | 1655 | 0 KWH @ | $ 235.52 | | |
| PREVIOUS | 1047 | 1449 | 1305000 KWH @ .072460 | 94560.30 | ON PEAK | |
| DIFFERENCE | 145 | 206 | 1854000 KWH @ .062560 | 115986.24 | OFF PEAK | |
| MULTIPLIER | 9000 | 9000 | KWH @ | | | |
| USE | 1305000 | 1854000 | KWH @ | | | |
| | | | KWH @ | | | |
| | | | KWH @ | | | |
| | | | KWH @ | | | |
| | | | KWH @ | | | 210782.06 |

ENERGY ADJUSTMENT CHARGE .002160-PER KWH 6823.44-

SUB TOTAL $

SUB TOTAL $ 267903.97

OUTDOOR AREA LIGHTING 13.58

TOTAL AMOUNT DUE $ 267917.55

SEP94

US ARMY FORT MONMOUTH
CAMP WOOD
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLD 173
FORT MONMOUTH NJ 07703

* NO PAYMENT DUE *

JERSEY CENTRAL P&L CO.
PO BOX 193
ALLENHURST NJ 07711-0193

H 21 805133050015 000000000000000000006

US ARMY FORT MONMOUTH
HOPE RD
EATONTOWN NJ 07724

501 GRAND AVENUE
ASBURY PARK, NJ 07712

80 51 33 0500 1 5

GT - GENERAL SERVICE
TRANSMISSION VOLTAGE

ACTUAL METER READING

THIS IS YOUR CURRENT BILL CALCULATION

| | | |
|---|---|---|
| BASE CHARGE | ON PEAK | $ 142,754.33 |
| | OFF PEAK | 103,599.36 |
| OUTDOOR LIGHT | | 13.75 |
| ENERGY ADJ CHG @ $.002160- PER KWH | | 6,240.41CR |
| CURRENT PERIOD CHARGES | | $ 240,127.03 |

08/31/94 TO 09/30/94
FOR 30 DAYS

PAYMENTS/CHARGES SINCE LAST BILL

| | | |
|---|---|---|
| PREVIOUS BALANCE | $ | .00 |
| BALANCE AT BILLING | $ | .00 |
| CURRENT PERIOD CHARGES | | 240,127.03 |
| TRANSFER TO 635100000911 | | 240,127.03CR |
| AMOUNT DUE | | .00 |

| METER NUMBER | METER READING CURRENT | METER READING PREVIOUS | MULTIPLIER | KILOWATT HOURS USED | REGISTERED KW / KVAR | BILLING KW / KVAR |
|---|---|---|---|---|---|---|
| 50693195 G | 1329 | 1192 | 9000 | 1,233,000 ONPK | 5,623.2 | 5,623.2 |
| 50693195 G | 1839 | 1655 | 9000 | 1,656,000 OFFPK | 4,856.4 | 0.0 |
| 62018313 G | 1992 | 1787 | 9000 | 1,845,000 RVAH | 3,092.4 | 3,092.4 |
| OUTDOOR LIGHT | | | | 73 | | |

2889,000

*******************************************************
REMEMBER, DAYLIGHT SAVINGS TIME ENDS OCTOBER 30TH. THIS MEANS MORE HOURS OF DARKNESS. PROTECT AND SECURE YOUR PROPERTY OR INCREASE THE VISIBILITY OF YOUR BUSINESS WITH AN ENERGY-EFFICIENT OUTDOOR SECURITY LIGHTING SYSTEM. WE OFFER AFFORDABLE MONTHLY RATES, FREE MAINTENANCE, AND A LEASED SYSTEM, WHICH MEANS THERE IS NO UP-FRONT INVESTMENT. CALL TODAY FOR YOUR FREE OUTDOOR LIGHTING SURVEY:
NORTHERN REGIONAL MARKETING OFFICE 201-455-8942
SOUTHERN REGIONAL MARKETING OFFICE 908-502-4357
*******************************************************
>>FOR ALL OTHER INQUIRIES OR TO REPORT AN OUTAGE
PLEASE USE PHONE NUMBERS LISTED BELOW <<

1-800-662-3115 1-908-531-3277 10/14/94 NO PAYMENT DUE

JERSEY CENTRAL POWER AND LIGHT COMPANY

US ARMY FORT MONMOUTH
CAMP WOOD

HOPE RD
EATONTOWN NJ
DIRECTOR OF PUBLIC WORK

DATE SEPTEMBER 1994

DISTRICT ASBURY PARK

ACCOUNT NO. 805133-0500-1 CK 5

ELECTRIC SERVICE FROM 08-31 TO 09-30 RATE 510

MEASURED DEMAND / DEMAND CHARGE

| | | | | | |
|---|---|---|---|---|---|
| | 5623.20 KW | KW @ | | $ | |
| ON PEAK | 5623.20 KW | 5623.20 KW @ | 9.22 | 51845.90 | |
| | | KW @ | | | |
| | | KW @ | | | $ 51845.90 |
| OFF PEAK | 4856.40 KW | RKVAH USE 1845000 | PF .88 | | |
| | | KVAR 3092.4 @ .43 | | | 1329.73 |

KWH METER / ENERGY CHARGE

| | ON PEAK | OFF PEAK | | | | | |
|---|---|---|---|---|---|---|---|
| PRESENT | 1329 | 1839 | 0 KWH @ | | $ 235.52 | | |
| PREVIOUS | 1192 | 1655 | 1233000 KWH @ | .072460 | 89343.18 | ON PEAK | |
| DIFFERENCE | 137 | 184 | 1656000 KWH @ | .062560 | 103599.36 | OFF PEAK | |
| MULTIPLIER | 9000 | 9000 | KWH @ | | | | |
| USE | 1233000 | 1656000 | KWH @ | | | | |
| | | | KWH @ | | | | |
| | | | KWH @ | | | | |
| | | | KWH @ | | | | |
| | | | KWH @ | | | | 193178.06 |

ENERGY ADJUSTMENT CHARGE .002160-PER KWH 6240.24-

SUB TOTAL $

SUB TOTAL $ 240113.45

OUTDOOR AREA LIGHTING 13.58

TOTAL AMOUNT DUE $ 240127.03

2 OCT94

US ARMY FORT MONMOUTH
CAMP WOOD
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLD 173
FORT MONMOUTH NJ 07703

* NO PAYMENT DUE *

JERSEY CENTRAL P&L CO.
PO BOX 193
ALLENHURST NJ 07711-0193

H 21 805133050015 000000000000000000006

US ARMY FORT MONMOUTH
HOPE RD
EATONTOWN NJ 07724

501 GRAND AVENUE
ASBURY PARK, NJ 07712

80 51 33 0500 1 5

GT - GENERAL SERVICE
TRANSMISSION VOLTAGE

ACTUAL METER READING

**THIS IS YOUR CURRENT BILL CALCULATION**

| | | |
|---|---|---|
| BASE CHARGE | ON PEAK | $ 109,544.08 |
| | OFF PEAK | 84,708.16 |
| OUTDOOR LIGHT | | 13.75 |
| ENERGY ADJ CHG @ $.002160- PER KWH | | 5,112.89CR |
| CURRENT PERIOD CHARGES | | $ 191,153.10 |

09/30/94 TO 10/29/94
FOR 29 DAYS

**PAYMENTS/CHARGES SINCE LAST BILL**

| | |
|---|---|
| PREVIOUS BALANCE | $ .00 |
| BALANCE AT BILLING | $ .00 |
| CURRENT PERIOD CHARGES | 191,153.10 |
| TRANSFER TO 635100000911 | 191,153.10CR |
| AMOUNT DUE | .00 |

| METER NUMBER | METER READING CURRENT | METER READING PREVIOUS | MULTIPLIER | KILOWATT HOURS USED | | REGISTERED KW / KVAR | BILLING KW / KVAR |
|---|---|---|---|---|---|---|---|
| 50693195 G | 1438 | 1329 | 9000 | 981,000 | ONPK | 4,482.0 | 4,482.0 |
| 50693195 G | 1993 | 1839 | 9000 | 1,386,000 | OFFPK | 4,413.6 | 0.0 |
| 62018313 G | 1970 | 1808 | 9000 | 1,458,000 | RVAH | 2,278.8 | 2,278.8 |
| OUTDOOR LIGHT | | | | 75 | | | |

2,367,000

*************************************************
NOW THAT DAYLIGHT SAVING TIME HAS ENDED, THERE ARE MORE HOURS OF DARKNESS. PROTECT AND SECURE YOUR PROPERTY OR INCREASE THE VISIBILITY OF YOUR BUSINESS WITH AN ENERGY-EFFICIENT OUTDOOR SECURITY LIGHTING SYSTEM. WE OFFER AFFORDABLE MONTHLY RATES, FREE MAINTENANCE, AND A LEASED SYSTEM, WHICH MEANS THERE IS NO UP-FRONT INVESTMENT. CALL TODAY FOR YOUR FREE OUTDOOR LIGHTING SURVEY:
NORTHERN REGIONAL MARKETING OFFICE 201-455-8942
SOUTHERN REGIONAL MARKETING OFFICE 908-502-4657
*************************************************
>>FOR ALL OTHER INQUIRIES OR TO REPORT AN OUTAGE
PLEASE USE PHONE NUMBERS LISTED BELOW <<

1-800-662-3115 1-908-531-3277 11/14/94 NO PAYMENT DUE

JERSEY CENTRAL POWER AND LIGHT COMPANY

US ARMY FORT MONMOUTH
CAMP WOOD

HOPE RD
EATONTOWN NJ
DIRECTOR OF PUBLIC WORK

DATE OCTOBER 1994

DISTRICT ASBURY PARK

ACCOUNT NO. 805133-0500-1 CK 5

ELECTRIC SERVICE FROM 09-30 TO 10-29 RATE 510

| MEASURED DEMAND | | DEMAND CHARGE | | | |
|---|---|---|---|---|---|
| | 4482.00 KW | KW @ | | $ | |
| ON PEAK | 4482.00 KW | 4482.00 KW @ | 8.31 | 37245.42 | |
| | | KW @ | | | |
| | | KW @ | | | $ 37245.42 |
| OFF PEAK | 4413.60 KW | RKVAH USE 1458000 | PF .89 | | |
| | | KVAR 2278.8 @ .43 | | | 979.88 |

| KWH METER | ON PEAK | OFF PEAK | ENERGY CHARGE | | | | |
|---|---|---|---|---|---|---|---|
| PRESENT | 1438 | 1993 | 0 KWH @ | | $ 235.52 | | |
| PREVIOUS | 1329 | 1839 | 981000 KWH @ | .072460 | 71083.26 | ON PEAK | |
| DIFFERENCE | 109 | 154 | 1386000 KWH @ | .062560 | 86708.16 | OFF PEAK | |
| MULTIPLIER | 9000 | 9000 | KWH @ | | | | |
| USE | 981000 | 1386000 | KWH @ | | | | |
| | | | KWH @ | | | | |
| | | | KWH @ | | | | |
| | | | KWH @ | | | | |
| | | | KWH @ | | | | 158026.94 |

ENERGY ADJUSTMENT CHARGE .002160-PER KWH 5112.72-

SUB TOTAL $

SUB TOTAL $ 191139.52

OUTDOOR AREA LIGHTING 13.58

TOTAL AMOUNT DUE $ 191153.10

2

NOV94

US ARMY FORT MONMOUTH
CAMP WOOD
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLD 173
FORT MONMOUTH NJ 07703

* NO PAYMENT DUE *

JERSEY CENTRAL P&L CO.
PO BOX 193
ALLENHURST NJ 07711-0193

H 21 805133050015 000000000000000000006

ESTIMATED BILL

US ARMY FORT MONMOUTH
HOPE RD
EATONTOWN NJ 07724

501 GRAND AVENUE
ASBURY PARK, NJ 07712

80 51 33 0500 1 5

GT - GENERAL SERVICE
TRANSMISSION VOLTAGE

ESTIMATED METER READING

**THIS IS YOUR CURRENT BILL CALCULATION**

| | | | |
|---|---|---|---|
| BASE CHARGE | ON PEAK | $ | 122,723.03 |
| | OFF PEAK | | 97,965.96 |
| OUTDOOR LIGHT | | | 13.75 |
| ENERGY ADJ CHG @ $.002160- PER KWH | | | 5,793.29CR |
| CURRENT PERIOD CHARGES | | $ | 214,912.45 |

10/29/94 TO 12/01/94
FOR 33 DAYS

**PAYMENTS/CHARGES SINCE LAST BILL**

| | | |
|---|---|---|
| PREVIOUS BALANCE | $ | .00 |
| BALANCE AT BILLING | $ | .00 |
| CURRENT PERIOD CHARGES | | 214,912.45 |
| TRANSFER TO 535100000711 | | 214,912.45CR |
| AMOUNT DUE | | .00 |

| METER NUMBER | METER READING CURRENT | PREVIOUS | MULTIPLIER | KILOWATT HOURS USED | | REGISTERED KW / KVAR | BILLING KW / KVAR |
|---|---|---|---|---|---|---|---|
| 50693195 G | | | | 108,000 | | | |
| 50693195 G | 1550 | 1438 | 9000 | 1,116,000 | ONPK | 4,864.5 | 4,864.5 |
| 50693195 G | | | | 180,000 | | | |
| 50693195 G | 2147 | 1993 | 9000 | 1,566,000 | OFFPK | 4,366.8 | 0.0 |
| 62018313 G | | | | ~~189,000~~ | | | |
| 62018313 G | 2160 | 1970 | 9000 | 1,899,000 | RVAH | 2,786.4 | 2,786.4 |
| OUTDOOR LIGHT | | | | 73 | | | |

1965,000

ALL OF US AT JERSEY CENTRAL POWER
AND LIGHT COMPANY WISH YOU A HAPPY
HOLIDAY SEASON

1-800-662-3115 1-908-531-3277 12/19/94 NO PAYMENT DUE

JERSEY CENTRAL POWER AND LIGHT COMPANY

US ARMY FORT MONMOUTH
CAMP WOOD
HOPE RD
EATONTOWN NJ
DIRECTOR OF PUBLIC WORK

2

DATE DECEMBER 1994
DISTRICT ASBURY PARK
ACCOUNT NO. 805133-0500-1 CK 5

ELECTRIC SERVICE FROM 10-29 TO 12-01 RATE 510

| MEASURED DEMAND | | DEMAND CHARGE | | | |
|---|---|---|---|---|---|
| | 4864.50 KW | KW @ | | $ | |
| ON PEAK | 4864.50 KW | 4864.50 KW @ | 8.31 | 40424.00 | |
| | | KW @ | | | |
| | | KW @ | | | $ 40424.00 |
| OFF PEAK | 4366.80 KW | RKVAH USE 1899000 | PF .87 | | |
| | | KVAR 2786.4 @ .43 | | | 1198.15 |

| KWH METER | ON PEAK | OFF PEAK | ENERGY CHARGE | | | |
|---|---|---|---|---|---|---|
| PRESENT | 1550 | 2147 | 0 KWH @ | | $ 235.52 | |
| PREVIOUS | 1438 | 1993 | 1116000 KWH @ | .072460 | 80865.36 | ON PEAK |
| DIFFERENCE | 112 | 154 | 1566000 KWH @ | .062560 | 97968.96 | OFF PEAK |
| MULTIPLIER | 9000 | 9000 | KWH @ | | | |
| USE | 1116000 | 1566000 | | | | |

63-51-00-000 911

KWH @ 179069.84

ENERGY ADJUSTMENT CHARGE .002160-PER KWH 5793.12-

SUB TOTAL $

SUB TOTAL $ 214898.87

OUTDOOR AREA LIGHTING 13.58

TOTAL AMOUNT DUE $ 214912.45

DEC 94.

US ARMY FORT MONMOUTH
CAMP WOOD
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLD 173
FORT MONMOUTH NJ 07703

* NO PAYMENT DUE *

JERSEY CENTRAL P&L CO.
PO BOX 193
ALLENHURST NJ 07711-0193

H 21 805133050015 0000000000000000000006

ESTIMATED BILL

US ARMY FORT MONMOUTH
HOPE RD
EATONTOWN NJ 07724

501 GRAND AVENUE
ASBURY PARK, NJ 07712

80 51 33 0500 1 5

GT - GENERAL SERVICE
TRANSMISSION VOLTAGE

ESTIMATED METER READING

THIS IS YOUR CURRENT BILL CALCULATION

| | | |
|---|---|---|
| BASE CHARGE ON PEAK | $ | 112,951.30 |
| OFF PEAK | | 85,019.04 |
| OUTDOOR LIGHT | | 13.75 |
| ENERGY ADJ CHG @ $.002160- PER KWH | | 5,087.62CR |
| CURRENT PERIOD CHARGES | $ | 192,896.47 |

12/01/94 TO 12/30/94
FOR 29 DAYS

PAYMENTS/CHARGES SINCE LAST BILL

| | | |
|---|---|---|
| PREVIOUS BALANCE | $ | .00 |
| BALANCE AT BILLING | $ | .00 |
| CURRENT PERIOD CHARGES | | 192,896.47 |
| TRANSFER TO 635100000911 | | 192,896.47CR |
| AMOUNT DUE | | .00 |

| METER NUMBER | METER READING CURRENT | PREVIOUS | MULTIPLIER | KILOWATT HOURS USED | | REGISTERED KW / KVAR | BILLING KW / KVAR |
|---|---|---|---|---|---|---|---|
| 50693195 G | | | | 96,300 | | | |
| 50693195 G | 1650 | 1550 | 9000 | 996,300 | ONPK | 4,737.6 | 4,737.6 |
| 50693195 G | | | | 171,000 | | | |
| 50693195 G | 2279 | 2147 | 9000 | 1,359,000 | OFFPK | 4,289.4 | 0.0 |
| 62018313 G | | | | 167,400 | | | |
| 62018313 G | 2318 | 2160 | 9000 | 1,589,400 | RVAH | 2,684.7 | 2,684.7 |
| OUTDOOR LIGHT | | | | 75 | | | |

1794 69

**********************************************
*WE KNOW THE WAY WE USE ELECTRICITY HAS CHANGED; *
*THIS CHANGE IN SOPHISTICATION BRINGS WITH IT *
*SUSCEPTIBILITY TO SPIKES, SAGS AND NOISE. *
*ALTHOUGH THE EXTERNAL CAUSES ARE MORE DRAMATIC *
*AND WELL KNOWN, RESEARCH HAS DETERMINED THAT *
*MOST DISTURBANCES OCCUR WITHIN FACILITIES. *
*THEREFORE, JERSEY CENTRAL POWER AND LIGHT IS *
*PLEASED TO ANNOUNCE POWERTEAM. WE ARE IN THE *
*BUSINESS OF EXPERTLY DIAGNOSING AND SOLVING *
*POWER QUALITY PROBLEMS WITHIN YOUR FACILITIES. *
* CALL 1-800-882-9229 FOR MORE INFORMATION *
**********************************************

>>FOR ALL OTHER INQUIRIES OR TO REPORT AN OUTAGE
PLEASE USE PHONE NUMBERS LISTED BELOW <<

1-800-662-3115 1-908-531-3277 01/16/95 NO PAYMENT DUE

JERSEY CENTRAL POWER AND LIGHT COMPANY

US ARMY FORT MONMOUTH 2
CAMP WOOD

HOPE RD
EATONTOWN NJ
DIRECTOR OF PUBLIC WORK

DATE DECEMBER 1994
DISTRICT ASBURY PARK
ACCOUNT NO. 805133-0500-1 CK 5

ELECTRIC SERVICE FROM 12-01 TO 12-30 RATE 510

| MEASURED DEMAND | | DEMAND CHARGE | | | |
|---|---|---|---|---|---|
| | 4737.60 KW | KW @ | | $ | |
| ON PEAK | 4737.60 KW | 4737.60 KW @ | 8.31 | 39369.46 | |
| | | KW @ | | | |
| | | KW @ | | | $ 39369.46 |
| OFF PEAK | 4289.40 KW | RKVAH USE 1589400 | PF .87 | | |
| | | KVAR 2684.7 @ .43 | | | 1154.42 |

| KWH METER | ON PEAK | OFF PEAK | ENERGY CHARGE | | | | |
|---|---|---|---|---|---|---|---|
| PRESENT | 1650 | 2279 | 0 KWH @ | | $ 235.52 | | |
| PREVIOUS | 1550 | 2147 | 996300 KWH @ | .072460 | 72191.90 | ON PEAK | |
| DIFFERENCE | 100 | 132 | 1359000 KWH @ | .062560 | 85019.04 | OFF PEAK | |
| MULTIPLIER | 9000 | 9000 | KWH @ | | | | |
| USE | 996300 | 1359000 | KWH @ | | | | |
| | | | KWH @ | | | | |
| | | | KWH @ | | | | |
| | | | KWH @ | | | | |
| | | | KWH @ | | | | 157446.46 |

ENERGY ADJUSTMENT CHARGE .002160-PER KWH 5087.45-

SUB TOTAL $

SUB TOTAL $ 192882.89

OUTDOOR AREA LIGHTING 13.58

TOTAL AMOUNT DUE $ 192896.47

(2)

JAN '95

US ARMY FORT MONMOUTH
CAMP WOOD
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLD 173
FORT MONMOUTH NJ 07703

* NO PAYMENT DUE *

JERSEY CENTRAL P&L CO.
PO BOX 193
ALLENHURST NJ 07711-0193

H

21 805133050015 0000000000000000000006

ESTIMATED BILL

US ARMY FORT MONMOUTH
HOPE RD
EATONTOWN NJ 07724

501 GRAND AVENUE
ASBURY PARK, NJ 07712

80 51 33 0500 1 5

GT - GENERAL SERVICE
TRANSMISSION VOLTAGE

ESTIMATED METER READING

**THIS IS YOUR CURRENT BILL CALCULATION**

| | | |
|---|---|---|
| BASE CHARGE | ON PEAK | $ 113,501.59 |
| | OFF PEAK | 94,977.14 |
| OUTDOOR LIGHT | | 13.60 |
| ENERGY ADJ CHG @ $.002160- PER KWH | | 5,462.81CR |
| CURRENT PERIOD CHARGES | | $ 203,029.52 |

12/30/94 TO 01/30/95
FOR 31 DAYS

**PAYMENTS/CHARGES SINCE LAST BILL**

| | |
|---|---|
| PREVIOUS BALANCE | $ .00 |
| BALANCE AT BILLING | $ .00 |
| CURRENT PERIOD CHARGES | 203,029.52 |
| TRANSFER TO 635100000911 | 203,029.52CR |
| AMOUNT DUE | .00 |

| METER NUMBER | METER READING CURRENT | METER READING PREVIOUS | MULTIPLIER | KILOWATT HOURS USED | | REGISTERED KW / KVAR | BILLING KW / KVAR |
|---|---|---|---|---|---|---|---|
| 50693195 G | | | | 126,000 | | | |
| 50693195 G | 1748 | 1650 | 9000 | 1,008,000 | ONPK | 4,725.9 | 4,725.9 |
| 50693195 G | | | | 189,000 | | | |
| 50693195 G | 2427 | 2279 | 9000 | 1,521,000 | OFFPK | 4,247.1 | 0.0 |
| 62018313 G | | | | 198,000 | | | |
| 62018313 G | 2486 | 2318 | 9000 | 1,710,000 | RVAH | 2,491.2 | 2,491.2 |
| OUTDOOR LIGHT | | | | 75 | | | |

7 2,844,000

1-800-662-3115 1-908-531-3277 02/13/95 NO PAYMENT DUE

JERSEY CENTRAL POWER AND LIGHT COMPANY

US ARMY FORT MONMOUTH
CAMP WOOD

HOPE RD
EATONTOWN NJ
DIRECTOR OF PUBLIC WORK

2

DATE JANUARY 1995

DISTRICT ASBURY PARK

ACCOUNT NO. 805133-0500-1 CK 5

ELECTRIC SERVICE FROM 12-30 TO 01-30 RATE 510

| MEASURED DEMAND | | DEMAND CHARGE | | | |
|---|---|---|---|---|---|
| | 4725.90 KW | KW @ | | $ | |
| ON PEAK | 4725.90 KW | 4725.90 KW @ | 8.31 | 39272.23 | |
| | | KW @ | | | |
| | | KW @ | | | $ 39272.23 |
| OFF PEAK | 4247.10 KW | RKVAH USE 1710000 | PF .88 | | |
| | | KVAR 2491.2 @ .43 | | | 1071.21 |

KWH METER / ENERGY CHARGE

| | ON PEAK | OFF PEAK | KWH | RATE | AMOUNT | |
|---|---|---|---|---|---|---|
| PRESENT | 1748 | 2427 | 0 KWH @ | | $ 235.52 | |
| PREVIOUS | 1650 | 2279 | 1008000 KWH @ | .072460 | 73039.68 | ON PEAK |
| DIFFERENCE | 98 | 148 | 1521000 KWH @ | .062560 | 95153.76 | OFF PEAK |
| MULTIPLIER | 9000 | 9000 | KWH @ | | | |
| USE | 1008000 | 1521000 | KWH @ | | | |
| | | | KWH @ | | | |
| | | | KWH @ | | | |
| | | | KWH @ | | | |
| | | | KWH @ | | | 168428.96 |

ENERGY ADJUSTMENT CHARGE .002160-PER KWH 5462.64-

SUB TOTAL $

SUB TOTAL $ 203309.76

RATE CHANGE ADJUSTMENT 293.67-

OUTDOOR AREA LIGHTING 13.43

TOTAL AMOUNT DUE $ 203029.52

FEB95

US ARMY FORT MONMOUTH
CAMP WOOD
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLD 173
FORT MONMOUTH NJ 07703

* NO PAYMENT DUE *

JERSEY CENTRAL P&L CO.
PO BOX 193
ALLENHURST NJ 07711-0193

H 21 805133050015 0000000000000000000006

ESTIMATED BILL

US ARMY FORT MONMOUTH
HOPE RD
EATONTOWN NJ 07724

501 GRAND AVENUE
ASBURY PARK, NJ 07712

80 51 33 0500 1 5

GT - GENERAL SERVICE
TRANSMISSION VOLTAGE

ESTIMATED METER READING

**THIS IS YOUR CURRENT BILL CALCULATION**

| | | |
|---|---|---|
| BASE CHARGE | ON PEAK | $ 115,812.69 |
| | OFF PEAK | 88,789.68 |
| OUTDOOR LIGHT | | 13.60 |
| ENERGY ADJ CHG @ $.002160- PER KWH | | 5,326.72CR |
| CURRENT PERIOD CHARGES | | $ 199,289.25 |

01/30/95 TO 03/01/95
FOR 30 DAYS

**PAYMENTS/CHARGES SINCE LAST BILL**

| | |
|---|---|
| PREVIOUS BALANCE | $ .00 |
| BALANCE AT BILLING | $ .00 |
| CURRENT PERIOD CHARGES | 199,289.25 |
| TRANSFER TO 63310000911 | 199,289.25CR |
| AMOUNT DUE | .00 |

| METER NUMBER | METER READING CURRENT | METER READING PREVIOUS | MULTIPLIER | KILOWATT HOURS USED | | REGISTERED KW / KVAR | BILLING KW / KVAR |
|---|---|---|---|---|---|---|---|
| 50693195 G | | | | 117,000 | | | |
| 50693195 G | 1851 | 1748 | 9000 | 1,044,000 | ONPK | 4,691.7 | 4,691.7 |
| 50693195 G | | | | 189,000 | | | |
| 50693195 G | 2564 | 2427 | 9000 | 1,422,000 | OFFPK | 4,295.7 | 0.0 |
| 62018313 G | | | | 189,000 | | | |
| 62018313 G | 2642 | 2486 | 9000 | 1,593,000 | RVAH | 2,479.5 | 2,479.5 |
| OUTDOOR LIGHT | | | | 68 | | | |

2,772,000



>>FOR ALL OTHER INQUIRIES OR TO REPORT AN OUTAGE PLEASE USE PHONE NUMBERS LISTED BELOW <<

1-800-662-3115 1-908-531-3277 03/13/95 NO PAYMENT DUE

JERSEY CENTRAL POWER AND LIGHT COMPANY

[illegible] FORT MONMOUTH
[illegible] WOOD
HOPE RD
EATONTOWN NJ
DIRECTOR OF PUBLIC WORK

2

DATE FEBRUARY 1995
DISTRICT ASBURY PARK
ACCOUNT NO. 805133-0500-1 CK 5

ELECTRIC SERVICE FROM 01-30 TO 03-01 RATE 510

| MEASURED DEMAND | DEMAND CHARGE | | | |
|---|---|---|---|---|
| 4691.70 KW | KW @ | | $ | |
| ON PEAK 4691.70 KW | 4691.70 KW @ | 8.31 | 38988.03 | |
| | KW @ | | | |
| | KW @ | | | $ 38988.03 |
| OFF PEAK 4295.70 KW | RKVAH USE 1593000 | PF .88 | | |
| | KVAR 2679.5 @ .43 | | | 1066.18 |

KWH METER

| | ON PEAK | OFF PEAK | ENERGY CHARGE | | | | |
|---|---|---|---|---|---|---|---|
| RESENT | 1851 | 2564 | 0 KWH @ | | $ 235.52 | | |
| REVIOUS | 1748 | 2427 | 1044000 KWH @ | .072340 | 75522.96 | ON PEAK | |
| IFFERENCE | 103 | 137 | 1422000 KWH @ | .062440 | 88789.68 | OFF PEAK | |
| ULTIPLIER | 9000 | 9000 | KWH @ | | | | |
| SE | 1044000 | 1422000 | KWH @ | | | | |
| | | | KWH @ | | | | |
| | | | KWH @ | | | | |
| | | | KWH @ | | | | |
| | | | KWH @ | | | | 164548.16 |

ENERGY ADJUSTMENT CHARGE .002160-PER KWH 5326.56-

SUB TOTAL $

SUB TOTAL $ 199275.81

OUTDOOR AREA LIGHTING 13.44

TOTAL AMOUNT DUE $ 199289.25

7 MAR 95

US ARMY FORT MONMOUTH
CAMP WOOD
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLD 173
FORT MONMOUTH NJ 07703

* NO PAYMENT DUE *

JERSEY CENTRAL P&L CO.
PO BOX 193
ALLENHURST NJ 07711-0193

H

21 805133050015 00000000000000000000006

ESTIMATED BILL

US ARMY FORT MONMOUTH
HOPE RD
EATONTOWN NJ 07724

501 GRAND AVENUE
ASBURY PARK, NJ 07712

80 51 33 0500 1 5

GT - GENERAL SERVICE
TRANSMISSION VOLTAGE

ESTIMATED METER READING

**THIS IS YOUR CURRENT BILL CALCULATION**

| | | |
|---|---|---|
| BASE CHARGE | ON PEAK | $ 112,853.16 |
| | OFF PEAK | 84,799.76 |
| OUTDOOR LIGHT | | 13.60 |
| ENERGY ADJ CHG @ $.002160- PER KWH | | 5,101.23CR |
| CURRENT PERIOD CHARGES | | $ 192,565.29 |
| 03/01/95 TO 03/30/95 | | |
| FOR 29 DAYS | | |

**PAYMENTS/CHARGES SINCE LAST BILL**

| | | |
|---|---|---|
| PREVIOUS BALANCE | $ | .00 |
| BALANCE AT BILLING | $ | .00 |
| CURRENT PERIOD CHARGES | | 192,565.29 |
| TRANSFER TO 635100000911 | | 192,565.29CR |
| AMOUNT DUE | | .00 |

| METER NUMBER | METER READING CURRENT | METER READING PREVIOUS | MULTIPLIER | KILOWATT HOURS USED | REGISTERED KW / KVAR | BILLING KW / KVAR |
|---|---|---|---|---|---|---|
| 50693195 G | | | | 94,500 | | |
| 50693195 G | 1952 | 1851 | 9000 | 1,003,500 ONPK | 4,678.2 | 4,678.2 |
| 50693195 G | | | | 170,100 | | |
| 50693195 G | 2696 | 2564 | 9000 | 1,358,100 OFFPK | 4,280.0 | 0.0 |
| 62018313 G | | | | 153,000 | | |
| 62018313 G | 2801 | 2642 | 9000 | 1,584,000 RVAH | 2,671.2 | 2,671.2 |
| OUTDOOR LIGHT | | | | 75 | | |

2,779,600

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>>FOR ALL OTHER INQUIRIES OR TO REPORT AN OUTAGE
PLEASE USE PHONE NUMBERS LISTED BELOW <<

1-800-662-3115 1-908-531-3277 04/17/95 NO PAYMENT DUE

JERSEY CENTRAL POWER AND LIGHT COMPANY

US ARMY FORT MONMOUTH
CAMP WOOD

HOPE RD
EATONTOWN NJ
DIRECTOR OF PUBLIC WORK

DATE APRIL 1995

DISTRICT ASBURY PARK

ACCOUNT NO. 805133-0500-1 CK 5

ELECTRIC SERVICE FROM 03-01 TO 03-30 RATE 510

| MEASURED DEMAND | | DEMAND CHARGE | | | |
|---|---|---|---|---|---|
| | 4678.20 KW | KW @ | | $ | |
| ON PEAK | 4678.20 KW | 4678.20 KW @ | 8.31 | 38875.84 | |
| | | KW @ | | | |
| | | KW @ | | | $ 38875.84 |
| OFF PEAK | 4280.00 KW | RKVAH USE 1584000 | PF .87 | | |
| | | KVAR 2671.2 @ .43 | | | 1148.61 |

| KWH METER | ON PEAK | OFF PEAK | ENERGY CHARGE | | | | |
|---|---|---|---|---|---|---|---|
| PRESENT | 1952 | 2696 | 0 KWH @ | | $ 235.52 | | |
| PREVIOUS | 1851 | 2564 | 1003500 KWH @ | .072340 | 72593.19 | ON PEAK | |
| DIFFERENCE | 101 | 132 | 1358100 KWH @ | .062440 | 84799.76 | OFF PEAK | |
| MULTIPLIER | 9000 | 9000 | KWH @ | | | | |
| = | 1003500 | 1358100 | KWH @ | | | | |
| | | | KWH @ | | | | |
| | | | KWH @ | | | | |
| | | | KWH @ | | | | |
| | | | KWH @ | | | | 157628.47 |

ENERGY ADJUSTMENT CHARGE .002160-PER KWH 5101.06-

SUB TOTAL $

SUB TOTAL $ 192551.86

OUTDOOR AREA LIGHTING 13.43

TOTAL AMOUNT DUE $ 192565.29

APR 95

US ARMY FORT MONMOUTH
CAMP WOOD
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLD 173
FORT MONMOUTH NJ 07703

* NO PAYMENT DUE *
MAKE CHECK PAYABLE JCP&L

JERSEY CENTRAL P&L CO.
PO BOX 193
ALLENHURST NJ 07711-0193

H 21 805133050015 000000000000000000006

ESTIMATED BILL

US ARMY FORT MONMOUTH
HOPE RD
EATONTOWN NJ 07724

501 GRAND AVENUE
ASBURY PARK, NJ 07712

80 51 33 0500 1 5

GT - GENERAL SERVICE
TRANSMISSION VOLTAGE

ESTIMATED METER READING

**THIS IS YOUR CURRENT BILL CALCULATION**

| | | | |
|---|---|---|---|
| BASE CHARGE | ON PEAK | $ | 115,125.38 |
| | OFF PEAK | | 92,723.40 |
| OUTDOOR LIGHT | | | 13.60 |
| ENERGY ADJ CHG @ $.002160- PER KWH | | | 5,435.59CR |
| CURRENT PERIOD CHARGES | | $ | 202,426.79 |

03/30/95 TO 05/01/95
FOR 32 DAYS

**PAYMENTS/CHARGES SINCE LAST BILL**

| | | |
|---|---|---|
| PREVIOUS BALANCE | $ | .00 |
| BALANCE AT BILLING | $ | .00 |
| CURRENT PERIOD CHARGES | | 202,426.79 |
| TRANSFER TO 635100000911 | | 202,426.79CR |
| AMOUNT DUE | | .00 |

| METER NUMBER | METER READING CURRENT | PREVIOUS | MULTIPLIER | KILOWATT HOURS USED | | REGISTERED KW / KVAR | BILLING KW / KVAR |
|---|---|---|---|---|---|---|---|
| 50693195 G | | | | 95,400 | | | |
| 50693195 G | 2056 | 1952 | 9000 | 1,031,400 | ONPK | 4,700.7 | 4,700.7 |
| 50693195 G | | | | 162,000 | | | |
| 50693195 G | 2843 | 2696 | 9000 | 1,485,000 | OFFPK | 4,106.7 | 0.0 |
| 62018313 G | | | | 157,500 | | | |
| 62018313 G | 2980 | 2801 | 9000 | 1,768,500 | RVAH | 2,826.9 | 2,826.9 |
| OUTDOOR LIGHT | | | | 73 | | | |

2,931,300



>>FOR ALL OTHER INQUIRIES OR TO REPORT AN OUTAGE
PLEASE USE PHONE NUMBERS LISTED BELOW <<

1-800-662-3115    1-908-531-3277    05/15/95    NO PAYMENT DUE

JERSEY CENTRAL POWER AND LIGHT COMPANY

US ARMY FORT MONMOUTH
CAMP WOOD

HOPE RD
EATONTOWN NJ
DIRECTOR OF PUBLIC WORK

DATE APRIL 1995

DISTRICT ASBURY PARK

ACCOUNT NO. 805133-0500-1 CK 5

ELECTRIC SERVICE FROM 03-30 TO 05-01 RATE 510

| MEASURED DEMAND | | DEMAND CHARGE | | | |
|---|---|---|---|---|---|
| | 4700.70 KW | KW @ | | $ | |
| ON PEAK | 4700.70 KW | 4700.70 KW @ | 8.31 | 39062.82 | |
| | | KW @ | | | |
| | | KW @ | | | $ 39062.82 |
| OFF PEAK | 4106.70 KW | RKVAH USE 1768500 | PF .86 | | |
| | | KVAR 2826.9 @ .43 | | | 1215.56 |

| KWH METER | ON PEAK | OFF PEAK | ENERGY CHARGE | | | | |
|---|---|---|---|---|---|---|---|
| PRESENT | 2056 | 2843 | 0 KWH @ | | $ 235.52 | | |
| PREVIOUS | 1952 | 2696 | 1031400 KWH @ | .072340 | 74611.48 | ON PEAK | |
| DIFFERENCE | 104 | 147 | 1485000 KWH @ | .062440 | 92723.40 | OFF PEAK | |
| MULTIPLIER | 9000 | 9000 | KWH @ | | | | |
| USE | 1031400 | 1485000 | KWH @ | | | | |
| | | | KWH @ | | | | |
| | | | KWH @ | | | | |
| | | | KWH @ | | | | |
| | | | KWH @ | | | | 16 570.40 |

ENERGY ADJUSTMENT CHARGE .002160-PER KWH 5435.42-

SUB TOTAL $

SUB TOTAL $ 202613.36

OUTDOOR AREA LIGHTING 13.43

TOTAL AMOUNT DUE $ 202626.79

JUL 95

US ARMY FORT MONMOUTH
CAMP WOOD
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLD 173
FORT MONMOUTH NJ 07703

* NO PAYMENT DUE *
MAKE CHECK PAYABLE JCP&L

JERSEY CENTRAL P&L CO.
PO BOX 193
ALLENHURST NJ 07711-0193

JUN 95
+
MAY 95
MISSING

H

21 805133050015 000000000000000000006

ESTIMATED BILL

US ARMY FORT MONMOUTH
HOPE RD
EATONTOWN NJ 07724

501 GRAND AVENUE
ASBURY PARK, NJ 07712

80 51 33 0500 1 5 -

GT-CRS5 - GENERAL SERVICE
TRANSMISSION VOLTAGE

ESTIMATED METER READING

| THIS IS YOUR CURRENT BILL CALCULATION | | | PAYMENTS/CHARGES SINCE LAST BILL | |
|---|---|---|---|---|
| BASE CHARGE | ON PEAK | $ 172,781.09 | PREVIOUS BALANCE | $ .00 |
| | OFF PEAK | 137,118.24 | BALANCE AT BILLING | $ .00 |
| OUTDOOR LIGHT | | 13.60 | CURRENT PERIOD CHARGES | 305,847.13 |
| ENERGY ADJ CHG @ $.001110- PER KWH | | 4,065.80CR | TRANSFER TO 635100000911 | 305,847.13CR |
| CURRENT PERIOD CHARGES | | $ 305,847.13 | AMOUNT DUE | .00 |

06/29/95 TO 07/31/95
FOR 32 DAYS

| METER NUMBER | METER READING CURRENT | PREVIOUS | MULTIPLIER | KILOWATT HOURS USED | | REGISTERED KW / KVAR | BILLING KW / KVAR |
|---|---|---|---|---|---|---|---|
| 50693195 G | | | | 189,000 | | | |
| 50693195 G | 2421 | 2279 | 9000 | 1,467,000 | ONPK | 7,002.9 | 7,002.9 |
| 50693195 G | | | | 315,000 | | | |
| 50693195 G | 3344 | 3135 | 9000 | 2,196,000 | OFFPK | 6,122.7 | 0.0 |
| 62018313 G | | | | 243,000 | | | |
| 62018313 G | 3605 | 3350 | 9000 | 2,538,000 | RVAH | 4,316.4 | 4,316.4 |
| OUTDOOR LIGHT | | | | 75 | | | |

PLEASE CONSERVE-HIGHER SUMMER RATES ARE IN EFFECT.

1-800-662-3115 1-908-531-3277 08/14/95 NO PAYMENT DUE

JERSEY CENTRAL POWER AND LIGHT COMPANY

US ARMY FORT MONMOUTH
CAMP WOOD

HOPE RD
EATONTOWN NJ
DIRECTOR OF PUBLIC WORK

DATE JULY 1995

DISTRICT ASBURY PARK

ACCOUNT NO. 805133-0500-1 CK 5

ELECTRIC SERVICE FROM 06-29 TO 07-31 RATE 560

| MEASURED DEMAND | | DEMAND CHARGE | | | |
|---|---|---|---|---|---|
| | 7002.90 KW | KW @ | | $ | |
| ON PEAK | 7002.90 KW | 7002.90 KW @ | 9.22 | 64566.74 | |
| | | KW @ | | | |
| | | KW @ | | | $ 64566.74 |
| OFF PEAK | 6122.70 KW | RKVAH USE 2538000 | PF .85 | | |
| | | KVAR 4316.4 @ | .43 | | 1856.05 |

| KWH METER | ON PEAK | OFF PEAK | ENERGY CHARGE | | | | |
|---|---|---|---|---|---|---|---|
| PRESENT | 2421 | 3344 | 0 KWH @ | | $ 235.52 | | |
| PREVIOUS | 2279 | 3135 | 1467000 KWH @ | .072340 | 106122.78 | ON PEAK | |
| DIFFERENCE | 142 | 209 | 2196000 KWH @ | .062440 | 137118.24 | OFF PEAK | |
| MULTIPLIER | 9000 | 9000 | KWH @ | | | | |
| USE | 1467000 | 2196000 | KWH @ | | | | |
| | | | KWH @ | | | | |
| | | | KWH @ | | | | |
| | | | KWH @ | | | | |
| | | | KWH @ | | | | 243476.54 |

ENERGY ADJUSTMENT CHARGE .001110-PER KWH 4065.93-

SUB TOTAL $

SUB TOTAL $ 305833.40

OUTDOOR AREA LIGHTING 13.73

# Attachment 8.3

## Incremental Rate Calculations
## for Winter and Summer Bills

# Jersey Central Power & Light Electric Rate Analysis
## Prepared by Entech Engineering, Inc.

### Billing and Client Information

| | |
|---|---|
| Client | Bldg. 2700 - Myer Center |
| Billing Year | 1994 |
| Billing Period | July |
| # of Billing Days | 33 |
| Enter "1" for Oct-May, "0" for Jun-Sep | 0 |
| Rate Schedule in Effect | Summer |

### Demand and Usage Information

| | |
|---|---|
| ***Demand Measurements*** | |
| On-Peak Demand (kW) | 7,020 |
| Reactive Demand (kvar) | 3,960 |
| ***Usage Measurements*** | |
| On-Peak Period (kWh) | 1,629,000 |
| Off-Peak Period (kWh) | 2,403,000 |

### Special Adjustments

| | |
|---|---|
| ***Energy Cost Adjustment per kWh*** | ($0.00216) |

# Jersey Central Power & Light Electric Rate Analysis
## Prepared by Entech Engineering, Inc.

### Duplicated Electric Bill

| | | | | | | |
|---|---|---|---|---|---|---|
| Customer Charge | 1 | Bill | @ | $235.52 | Per Bill | $235.52 |
| On-Peak Demand Charge | 7020 | kW | @ | $9.22 | Per kW | $64,724.40 |
| Reactive Demand Charge | 3960 | kvar | @ | $0.43 | Per kvar | $1,702.80 |
| On-Peak Usage Charge | 1,629,000 | kWh | @ | $0.072460 | Per kWh | $118,037.34 |
| Off-Peak Usage Charge | 2,403,000 | kWh | @ | $0.062560 | Per kWh | $150,331.68 |
| Energy Cost Adjustment | 4,032,000.00 | $/kWh | @ | ($0.002160) | Per kWh | ($8,709.12) |
| Outdoor Lighting Charge | 1 | Bill | @ | $13.58 | Per Bill | $13.58 |
| | | | | | **Current Period Charges:** | **$326,336.20** |

### Calculated Incremental

| | |
|---|---|
| Incremental Cost per kW | $9.22 |
| Incremental Cost per Reactive Demand kvar | $0.43000 |
| Incremental Cost per On-Peak kWh | $0.07246 |
| Incremental Cost per Off-Peak kWh | $0.06256 |

### Calculated Billing Statistics Based on Incremental Costs

| | | | |
|---|---|---|---|
| Demand Cost | $64,724.40 | Energy Cost | $268,369.02 |
| % Demand | 19.8% | % Energy Cost | 82.2% |
| | | Power Factor Penalty: | $1,702.80 |

### Current Electric Tariff (Rate GT)

| | Summer | Winter |
|---|---|---|
| Customer Charge ($/Bill) | $235.52 | $235.52 |
| On-Peak Demand Charge ($/kW)* | $9.22 | $8.31 |
| Reactive Demand Charge ($/kvar)* | $0.43 | $0.43 |
| On-Peak Usage Charge ($/kWh)* | $0.07246 | $0.07246 |
| Off-Peak Usage Charge ($/kWh)* | $0.06256 | $0.06256 |
| Energy Cost Adjustment Charge ($/kWh) | ($0.00216) | ($0.00216) |
| Outdoor Lighting* | $13.58 | $13.58 |

# Jersey Central Power & Light Electric Rate Analysis
## Prepared by Entech Engineering, Inc.

*Electric Bill Calculation*

| Calculation Description | Actual Billing | Demand , kW Minus 1kW | Reactive Demand Minus 1 kvar | On-Peak Usage Minus 1 kWh | Off-Peak Usage Minus 1 kWh |
|---|---|---|---|---|---|
| On-Peak Demand (kW)* | 7,020.0 | 7,019.0 | 7,020.0 | 7,020.0 | 7,020.0 |
| Reactive Demand (kvar)* | 3,960.0 | 3,960.0 | 3,959.0 | 3,960.0 | 3,960.0 |
| On-Peak Usage (kWh)* | 1,629,000 | 1,629,000 | 1,629,000 | 1,628,999 | 1,629,000 |
| Off-Peak Usage (kWh)* | 2,403,000 | 2,403,000 | 2,403,000 | 2,403,000 | 2,402,999 |
| Total Usage (kWh) | 4,032,000 | 4,032,000 | 4,032,000 | 4,031,999 | 4,031,999 |
| Energy Cost Adj. ($/kWh) | ($0.00216) | ($0.00216) | ($0.00216) | ($0.00216) | ($0.00216) |
| *Cost Calculation* | | | | | |
| Customer Charge per month | $235.52 | $235.52 | $235.52 | $235.52 | $235.52 |
| On-Peak Demand Charge | $64,724.40 | $64,715.18 | $64,724.40 | $64,724.40 | $64,724.40 |
| Reactive Demand Charge | $1,702.80 | $1,702.80 | $1,702.37 | $1,702.80 | $1,702.80 |
| On-Peak kWh Charge | $118,037.34000 | $118,037.34000 | $118,037.34000 | $118,037.26754 | $118,037.34000 |
| Off-Peak kWh Charge | $150,331.68000 | $150,331.68000 | $150,331.68 | $150,331.68 | $150,331.62 |
| **Subtotal:** | $335,031.74 | $335,022.52 | $335,031.31 | $335,031.67 | $335,031.68 |
| Energy Cost Adjustment | ($8,709.12) | ($8,709.12) | ($8,709.12) | ($8,709.12) | ($8,709.12) |
| Outdoor Lighting* | $13.58 | $13.58 | $13.58 | $13.58 | $13.58 |
| **Total Current Bill:** | **$326,336.20** | **$326,326.98** | **$326,335.77** | **$326,336.13** | **$326,336.14** |
| **Incremental Costs:** | n/a | **$9.22** | **$0.43** | **$0.07246** | **$0.06256** |

# Jersey Central Power & Light Electric Rate Analysis
## Prepared by Entech Engineering, Inc.

### Incremental Cost Check

| *Cost Calculations Using Incrementals* | | | | | |
|---|---|---|---|---|---|
| On-Peak Demand Charge | 7,020.0 | kW | @ | $9.22 | $64,724.40 |
| On-Peak Usage Charge | 1,629,000 | kWh | @ | $0.07246 | $118,037.34 |
| Off-Peak Usage Charge | 2,403,000 | kWh | @ | $0.06256 | $150,331.68 |
| | | | | **Total Calculated Billing Using Incrementals:** | **$333,093.42** |
| | | | | **Actual Current Period Charges:** | **$326,336.20** |
| | | | | **Cost Variance (Actual Minus Incremenal):** | **($6,757.22)** |
| | | | | **Percent Variance (Var/Actual):** | **-2.1%** |

# Jersey Central Power & Light Electric Rate Analysis
## Prepared by Entech Engineering, Inc.

### Billing and Client Information

| | |
|---|---|
| Client | Bldg. 2700 - Myer Center |
| Billing Year | 1995 |
| Billing Period | April |
| # of Billing Days | 32 |
| Enter "1" for Oct-May, "0" for Jun-Sep | 1 |
| Rate Schedule in Effect | Winter |

### Demand and Usage Information

| | |
|---|---|
| ***Demand Measurements*** | |
| On-Peak Demand (kW) | 4,701 |
| Reactive Demand (kvar) | 2,827 |
| ***Usage Measurements*** | |
| On-Peak Period (kWh) | 1,031,400 |
| Off-Peak Period (kWh) | 1,485,000 |

### Special Adjustments

| | |
|---|---|
| ***Energy Cost Adjustment per kWh*** | ($0.00216) |

# Jersey Central Power & Light Electric Rate Analysis

## Prepared by Entech Engineering, Inc.

### Duplicated Electric Bill

| | | | | | | |
|---|---|---|---|---|---|---|
| Customer Charge | 1 | Bill | @ | $235.52 | Per Bill | $235.52 |
| On-Peak Demand Charge | 4700.7 | kW | @ | $8.31 | Per kW | $39,062.82 |
| Reactive Demand Charge | 2826.9 | kvar | @ | $0.43 | Per kvar | $1,215.57 |
| On-Peak Usage Charge | 1,031,400 | kWh | @ | $0.072340 | Per kWh | $74,611.48 |
| Off-Peak Usage Charge | 1,485,000 | kWh | @ | $0.062440 | Per kWh | $92,723.40 |
| Energy Cost Adjustment | 2,516,400.00 | $/kWh | @ | ($0.002160) | Per kWh | ($5,435.42) |
| Outdoor Lighting Charge | 1 | Bill | @ | $13.43 | Per Bill | $13.43 |
| | | | | **Current Period Charges:** | | **$202,426.79** |

### Calculated Incremental

| | |
|---|---|
| Incremental Cost per kW | $8.31 |
| Incremental Cost per Reactive Demand kvar | $0.43000 |
| Incremental Cost per On-Peak kWh | $0.07234 |
| Incremental Cost per Off-Peak kWh | $0.06244 |

### Calculated Billing Statistics Based on Incremental Costs

| | | | |
|---|---|---|---|
| Demand Cost | $39,062.82 | Energy Cost | $167,334.88 |
| % Demand | 19.3% | % Energy Cost | 82.7% |
| | | Power Factor Penalty: | $1,215.57 |

### Current Electric Tariff (Rate GT)

| | Summer | Winter |
|---|---|---|
| Customer Charge ($/Bill) | $235.52 | $235.52 |
| On-Peak Demand Charge ($/kW)* | $9.22 | $8.31 |
| Reactive Demand Charge ($/kvar)* | $0.43 | $0.43 |
| On-Peak Usage Charge ($/kWh)* | $0.07234 | $0.07234 |
| Off-Peak Usage Charge ($/kWh)* | $0.06244 | $0.06244 |
| Energy Cost Adjustment Charge ($/kWh) | ($0.00216) | ($0.00216) |
| Outdoor Lighting* | $13.43 | $13.43 |

# Jersey Central Power & Light Electric Rate Analysis
## Prepared by Entech Engineer·ıg, Inc.

*Electric Bill Calculation*

| Calculation Description | Actual Billing | Demand , kW Minus 1kW | Reactive Demand Minus 1 kvar | On-Peak Usage Minus 1 kWh | Off-Peak Usage Minus 1 kWh |
|---|---|---|---|---|---|
| On-Peak Demand (kW)* | 4,700.7 | 4,699.7 | 4,700.7 | 4,700.7 | 4,700.7 |
| Reactive Demand (kvar)* | 2,826.9 | 2,826.9 | 2,825.9 | 2,826.9 | 2,826.9 |
| On-Peak Usage (kWh)* | 1,031,400 | 1,031,400 | 1,031,400 | 1,031,399 | 1,031,400 |
| Off-Peak Usage (kWh)* | 1,485,000 | 1,485,000 | 1,485,000 | 1,485,000 | 1,484,999 |
| Total Usage (kWh) | 2,516,400 | 2,516,400 | 2,516,400 | 2,516,399 | 2,516,399 |
| Energy Cost Adj. ($/kWh) | ($0.00216) | ($0.00216) | ($0.00216) | ($0.00216) | ($0.00216) |
| *Cost Calculation* | | | | | |
| Customer Charge per month | $235.52 | $235.52 | $235.52 | $235.52 | $235.52 |
| On-Peak Demand Charge | $39,062.82 | $39,054.51 | $39,062.82 | $39,062.82 | $39,062.82 |
| Reactive Demand Charge | $1,215.56 | $1,215.56 | $1,215.13 | $1,215.56 | $1,215.56 |
| On-Peak kWh Charge | $74,611.47600 | $74,611.47600 | $74,611.47600 | $74,611.40366 | $74,611.47600 |
| Off-Peak kWh Charge | $92,723.40000 | $92,723.40000 | $92,723.40 | $92,723.40 | $92,723.34 |
| **Subtotal:** | $207,848.78 | $207,840.47 | $207,848.35 | $207,848.70 | $207,848.71 |
| Energy Cost Adjustment | ($5,435.42) | ($5,435.42) | ($5,435.42) | ($5,435.42) | ($5,435.42) |
| Outdoor Lighting* | $13.43 | $13.43 | $13.43 | $13.43 | $13.43 |
| **Total Current Bill:** | **$202,426.79** | **$202,418.48** | **$202,426.36** | **$202,426.71** | **$202,426.72** |
| **Incremental Costs:** | n/a | $8.31 | $0.43 | $0.07234 | $0.06244 |

# Jersey Central Power & Light Electric Rate Analysis
## Prepared by Entech Engineering, Inc.

**Incremental Cost Check**

| *Cost Calculations Using Incrementals* | | | | | |
|---|---|---|---|---|---|
| On-Peak Demand Charge | 4,700.7 | kW | @ | $8.31 | $39,062.82 |
| On-Peak Usage Charge | 1,031,400 | kWh | @ | $0.07234 | $74,611.48 |
| Off-Peak Usage Charge | 1,485,000 | kWh | @ | $0.06244 | $92,723.40 |
| **Total Calculated Billing Using Incrementals:** | | | | | **$206,397.69** |
| **Actual Current Period Charges:** | | | | | **$202,426.79** |
| **Cost Variance (Actual Minus Incremenal):** | | | | | **($3,970.90)** |
| **Percent Variance (Var/Actual):** | | | | | **-2.0%** |

# Attachment 8.4

## Jersey Central Power & Light (JCP&L)
## Electric Rate Schedule

## SERVICE CLASSIFICATION GT
## GENERAL SERVICE TRANSMISSION

**APPLICABLE TO USE OF SERVICE FOR:** Service Classification GT is available for general service purposes for commercial and industrial customers.

**CHARACTER OF SERVICE:** Three-phase service at transmission voltages.

**RATE PER BILLING MONTH:**

(a) **Customer Charge: $235.52**

(b) **Demand Charge:**
**$9.22** per maximum KW during June through September on-peak hours
**$8.31** per maximum KW during October through May on-peak hours

(c) **Kilovolt-Ampere Charge: $0.43** per KVAR based upon the 15-minute integrated KVAR demand which occurs coincident with the KW demand used for Demand Charge purposes. (See Part II, Section 5.05)

(d) **Base Rate Energy Charge:**
**7.234¢** per KWH during on-peak hours
**6.244¢** per KWH during off-peak hours

(d) **Rate Adjustment Charges:** All KWH supplied under this Service Classification are additionally subject to the combined credit/charge provided under ENERGY ADJUSTMENT CLAUSE (Rider EAC) and DEMAND SIDE FACTOR (Rider DSF). Credits/charges provided under any other riders are already included within the stated Base Rate Energy Charge.

**MINIMUM CHARGE PER MONTH:**
Monthly bills computed under this service classification shall not be rendered for less than the sum of the current month's: Customer Charge, Base Rate Energy Charge, Kilovolt-Ampere Reactive Charge and Rate Adjustment Charges, all as determined above; plus **$2.74** per KW for the highest on-peak or off-peak demand created in the current and preceding eleven months (but not less than the Contract Demand). When the maximum on-peak demand created in the current and preceding eleven months has not exceeded 3% of the maximum off-peak demand created in the current and preceding eleven months, however, the charge per KW specified above shall be reduced by **$1.14**.

(continued)

Issued: December 30, 1994

Effective: January 1, 1995

Issued by Michael P. Morrell, Vice President-Regulatory and Public Affairs
310 Madison Avenue, Morristown, NJ 07962-1911
Filed pursuant to Order of Board of Public Utilities
in Docket No. AX91111712 dated December 26, 1991

## SERVICE CLASSIFICATION GT
## GENERAL SERVICE TRANSMISSION
(continued)

**DETERMINATION OF DEMAND:** The KW during on-peak hours used for billing purposes shall be the maximum 15 minute integrated kilowatt demand created during the on-peak hours each billing month calculated to nearest one-tenth KW. The off-peak demand shall be the maximum demand created during the remaining hours. A Contract Demand not less than the actual monthly demands may also be specified for mutually agreeable contract purposes.

**DEFINITION OF ON-PEAK AND OFF-PEAK HOURS:**
The hours to be considered as on-peak are from 8 a.m. to 8 p.m. prevailing time Monday through Friday. All other hours including weekend hours will be considered off-peak. The Company reserves the right to change the on-peak hours from time to time as the on-peak periods of the supply system change. The off-peak hours will not be less than 12 hours daily.

**TERM OF CONTRACT:** None, except that reasonable notice of service discontinuance will be required. Where special circumstances apply or special or unusual facilities are supplied, contracts of one year or more may be required.

**TERMS OF PAYMENT:** Bills are due when rendered and become overdue when payment is not received by the Company on or before the due date specified on the bill. Overdue bills thereafter become subject to a late payment charge as described in Section 3.19, Part II.

**SERVICE CHARGE:** A Service Charge of **$14.00** shall be applicable for initiating service to a customer under this Service Classification (see Part II, Section 2.01). A **$54.00** Service Charge shall be applicable for final bill readings requested to be performed other than during the normal working hours of 8 AM to 4:30 PM, Monday through Friday. (See Part II, Section 3.13)

**RECONNECTION CHARGES:** A Reconnection Charge, applicable after a discontinuance requested by the customer or because of a default by the customer, of **$22.00** is applicable to service reconnections which can be performed at the meter during the normal working hours of 8 AM to 4:30 PM, Monday through Friday. A Reconnection Charge of **$54.00** is applicable to service reconnections which can be performed at the meter during all other hours. The charge for all reconnections which cannot be performed at the meter shall be based upon billing work order costs. (see Part II, Section 8.04).

(continued)

## SERVICE CLASSIFICATION GT
## GENERAL SERVICE TRANSMISSION
## (continued)

**RECONNECTIONS WITHIN 12 MONTH PERIOD:** Customers which request a disconnection and reconnection of service at the same location within a 12 month period shall not be relieved of Minimum Demand Charges resulting from demands created during the preceding eleven months, even though occurring prior to such disconnection.

Customers which request more than one disconnection and reconnection of service at the same location within a 12 month period shall be subject to the conditions specified above for the first such period of disconnection. In addition, for subsequent periods of disconnection, the customer shall be required to pay an additional Reconnection Charge equivalent to the sum of the Minimum Demand Charges, determined in accordance with the conditions specified in the preceding paragraph, for each month of that subsequent period.

**SPECIAL PROVISIONS:**
**(a) Commuter Rail Service:** Where service is supplied to interconnected traction power accounts for a commuter rail system, such accounts shall be conjunctively billed based upon coincident demands. This Special Provision also modifies the DEFINITION OF ON-PEAK AND OFF-PEAK HOURS for Demand Charge purposes only, such that the following Federal Holidays are considered off-peak the entire day: New Years Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. In addition, the period from 8 AM to 10 AM prevailing time Monday through Friday shall be considered as off-peak for Demand Charge purposes only. The Company reserves the right to change the on-peak hours from time to time as the on-peak periods of the supply system change.

**(b) High Tension Service:** Where service is supplied at 230 KV, the Rate per Billing Month shall be reduced $0.23 per KW of Demand Charge and 0.146¢ per KWH of Base Rate Energy Charge to reflect the reduced line losses associated with service at this voltage level.

**ADDITIONAL MODIFYING RIDERS:** This Service Classification may also be modified for PUBLIC UTILITY EXEMPTION FROM STATE TAX COLLECTION (Rider TXE), COGENERATION AND SMALL POWER PRODUCTION SERVICE (Rider QFS) and STANDBY SERVICE (Rider STB). Curtailable credits are available under OPTIONAL CURTAILABLE SERVICE (Rider CURX) and CURTAILABLE SERVICE (Rider CUR).

**STANDARD TERMS AND CONDITIONS:** This Service Classification is subject to the Standard Terms and Conditions of this Tariff for Electric Service.

Issued: February 26, 1993 Effective: February 26, 1993

Issued by Michael P. Morrell, Vice President-Materials, Services and Regulatory Affairs
310 Madison Avenue, Morristown, NJ 07962-1911
Filed pursuant to Order of Board of Regulatory Commissioners
in Docket No. ER91121820J dated February 26, 1993

# Attachment 8.5

# Building 2700 Fuel Oil Bills

AFRS4

CEIVING REPORT | DLA600-92-D-4192 | 2V 01 | | D

1 | 1 Apr 94 | 101 | NET 30

CONTRACTOR CODE 00006879

Premier O&G Supply Co., Inc.
T/A CP PO Box 1071A
673 New Brunswick Ave, Rahway, NJ

10 ADMINISTERED BY CODE SC0600
Defense Fuel Supply Center
Cameron Station
Alexandria, VA 22314

12 PAYMENT WILL BE MADE BY CODE SA4900
Defense Fuel Supply Center
ATTN: DFSC-CDX
Cameron Station, Bldg 5
Alexandria, VA 22314

SHIPPED TO CODE W15NZS
Directorate of Logistics
Supply Services Division
Fuel Yard
Fort Monmouth, NJ 07703

14. MARKED FOR CODE
Bldg 2700

| ITEM NO | STOCK/PART NO. DESCRIPTION | QUANTITY SHIP/REC'D | UNIT | UNIT PRICE | AMOUNT |
|---|---|---|---|---|---|
| 15-462 | Burner Oil #2<br>TICKET 46114 GALLONS 7576.6 | 7,576.6 | gal | .78 | $5,909.75 |

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN
PQA [ ] ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

B. DESTINATION
PQA [x] ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.
Barbara C. Moffett
4-1-94
DATE | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND TITLE

22. RECEIVER'S USE
Quantities shown in column 17 were received in apparent good condition except as noted
4-1-94 | [signature]
DATE RECEIVED | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE
* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle

CONTRACTOR USE ONLY
97X4930.5CF001.26.1 S44203 000000/A/RR W15NZS 4080-0201

722896.J30.000000 LMZZ2.4 4LJ116 99-4118-2008

DLA600-92-D-4192 ... 2V 01

ECEIVING REPORT

| | |
|---|---|
| 2 | 5 Apr 94 |

101

NET 30

CONTRACTOR CODE 00006879

Premier O&G Supply Co., Inc.
T/A CP PO Box 1071A
673 New Brunswick Ave, Rahway, NJ

ADMINISTERED BY CODE SC0600

Defense Fuel Supply Center
Cameron Station
Alexandria, VA 22314

12. PAYMENT WILL BE MADE BY CODE SA4900

Defense Fuel Supply Center
ATTN: DFSC-CDX
Cameron Station, Bldg 5
Alexandria, VA 22314

SHIPPED TO CODE W15HZS

Directorate of Logistics
Supply Services Division
Fuel Yard
Fort Monmouth, NJ 07703

14. MARKED FOR CODE

Bldg 2700

| ITEM NO | 16. STOCK/PART NO. DESCRIPTION | 17. QUANTITY SHIP/REC'D | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 45-462 | Burner Oil #2<br>TICKET 46558 GALLONS 7029.7 | 7,029.7 | gal | .78 | $5,483.17 |

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

4-5-94

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted

4-5-94 | Jm Walley

DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle

CONTRACTOR USE ONLY

97X4930.5CF001.26.1 S44203 000000/A/RR

W15HZS 4080-02

722896.J30.000000 LMZZZ.4 4LJ116 99-4118-2007

AND
RECEIVING REPORT

DLA600-92-D-4192 2V 01

D

| 4 | 3 DATE SHIPPED | 4 B/L | 5 DISCOUNT TERMS |
|---|---|---|---|
| 4 | 8 Apr 94 | 101 | NET 30 |

CONTRACTOR CODE 00006879

Premier O&G Supply Co., Inc.
T/A CP PO Box 1071A
673 New Brunswick Ave, Rahway, NJ

10 ADMINISTERED BY CODE SC0600

Defense Fuel Supply Center
Cameron Station
Alexandria, VA 22314

12 PAYMENT WILL BE MADE BY CODE SA4900

Defense Fuel Supply Center
ATTN: DFSC-CDX
Cameron Station, Bldg 5
Alexandria, VA 22314

SHIPPED TO CODE W15HZS

Directorate of Logistics
Supply Services Division
Fuel Yard
Fort Monmouth, NJ 07703

14. MARKED FOR CODE

Bldg 2700

| ITEM NO | 16. STOCK/PART NO. DESCRIPTION | 17. QUANTITY SHIP/REC'D | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 45-462 | Burner Oil #2 | 6,990.6 | gal | .78 | $5,452.67 |
| | TICKET 47029 GALLONS 6990.6 | | | | |

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE    SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

4-8-94
DATE    SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted

4-8-94    [signature]
DATE RECEIVED    SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle

CONTRACTOR USE ONLY

97X4930.5CFU01.26.1 S44203 000000/A/RR    W15HZS 4080-02C

722896.J30.000.000.LMZZ2.4 4LJ116 99-4118-2005

ECEIVING REPORT / DLA600-92-D-4192 2V 01 D

| No. | 3 DATE SHIPPED | 4 B/L | 5 DISCOUNT TERMS |
|---|---|---|---|
| 6 | 14 Apr 94 | 101 | NET 30 |

CONTRACTOR CODE 00006879

Premier O&G Supply Co., Inc.
T/A CP PO Box 1071A
673 New Brunswick Ave, Rahway, NJ

10 ADMINISTERED BY CODE SC0600

Defense Fuel Supply Center
Cameron Station
Alexandria, VA 22314

SHIPPED FROM (if other than 9) CODE FOB:

12 PAYMENT WILL BE MADE BY CODE SA4900

Defense Fuel Supply Center
ATTN: DFSC-CDX
Cameron Station, Bldg 5
Alexandria, VA 22314

SHIPPED TO CODE W15HZS

Directorate of Logistics
Supply Services Division
Fuel Yard
Fort Monmouth, NJ 07703

14. MARKED FOR CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number) | 17. QUANTITY SHIP/REC'D | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 45-462 | Burner Oil #2 | 6,990.1 | gal | .78 | $ 5,452.28 |
| | TICKET GALLONS | | | | |
| | 47226 6990.1 | | | | |

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

4-14-94

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted

4-14-94 [signature]

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by ( ✓ ) mark, if different, enter actual quantity received below quantity shipped and encircle

CONTRACTOR USE ONLY

97X4930.5CF001.26.1 S44203 000000/A/RR W15HZS 4080-0201

722896.J30.000000 LMZZZ.4 4LJ116 99-4118-2003

ECEIVING REPORT [illegible]

DLA600-92-D-4192 ... 2V 01

| 8 | 20 Apr 94 | 101 | NET 30 |
|---|---|---|---|

CONTRACTOR CODE 00006879

Premier O&G Supply Co., Inc.
T/A CP PO Box 1071A
673 New Brunswick Ave, Rahway, NJ

ADMINISTERED BY CODE SC0600

Defense Fuel Supply Center
Cameron Station
Alexandria, VA 22314

12. PAYMENT WILL BE MADE BY CODE SA4900

Defense Fuel Supply Center
ATTN: DFSC-CDX
Cameron Station, Bldg 5
Alexandria, VA 22314

SHIPPED TO CODE W15HZS

Directorate of Logistics
Supply Services Division
Fuel Yard
Fort Monmouth, NJ 07703

14. MARKED FOR CODE

Bldg 2700 and 1220

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION | 17. QUANTITY SHIP/REC'D | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 45-462 | Burner Oil #2<br>TICKET GALLONS<br>47640 7551.8<br>47641 7521.5 | 15,073.3 | gal | .78 | $ 11,757.17 |

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

B. DESTINATION

PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

4-20-94
DATE SIGNATURE OF AUTH GOVT REP
TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted

4-20-94 [signature]
DATE RECEIVED SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle

CONTRACTOR USE ONLY

97X4930.5CF001.26.1 S44203 000000/A/RR W15HZS 4080-02(

722896.J30.000000 LMZZZ4.4LJ116 99-4118-2001
Bldg 2700 - 7,521.5 gals
Bldg 1220 - 7,551.8 gals

AND
ECEIVING REPORT

DCA600-92-D-4192 | 2V 01 | D

| NO. | 3 DATE SHIPPED | 4 B/L | 5 DISCOUNT TERMS |
|---|---|---|---|
| 9 | 26 Apr 94 | 101 | NET 30 |

CONTRACTOR CODE 00006079

Premier O&G Supply Co., Inc.
T/A CP PO Box 1071A
673 New Brunswick Ave, Rahway, NJ

10 ADMINISTERED BY CODE SC0600

Defense Fuel Supply Center
Cameron Station
Alexandria, VA 22314

12 PAYMENT WILL BE MADE BY CODE SA4900

Defense Fuel Supply Center
ATTN: DFSC-CDX
Cameron Station, Bldg 5
Alexandria, VA 22314

SHIPPED FROM CODE FOB:

SHIPPED TO CODE W15HZS

Directorate of Logistics
Supply Services Division
Fuel Yard
Fort Monmouth, NJ 07703

14. MARKED FOR CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number) | 17. QUANTITY SHIP/REC'D | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 45-462 | Burner Oil #2 | 7,009.5 | gal | .78 | $5,467.41 |
| | TICKET GALLONS | | | | |
| | 47832 7009.5 | | | | |

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME
AND OFFICE

B. DESTINATION

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

4-26-94

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME
AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted

4-26-94 Ted Smither

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME
AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle

CONTRACTOR USE ONLY

97X4930.5CFU01.26.1 S44203 000000/A/RR W15HZS 4080-02C

722896.J30.000000.LMZZZ.4.4LJ116 99-4118-2000

MAY 94

RECEIVING REPORT

| | |
|---|---|
| 1 | 3 May 94 |
| B/L 101 | |
| DISCOUNT TERMS | NET 30 |

CONTRACTOR CODE 00006079

Premier O&G Supply Co., Inc.
T/A CP PO Box 1071A
673 New Brunswick Ave, Rahway, NJ

ADMINISTERED BY CODE SC0600

Defense Fuel Supply Center
Cameron Station
Alexandria, VA 22314

PAYMENT WILL BE MADE BY CODE SA4900

Defense Fuel Supply Center
ATTN: DFSC-CDX
Cameron Station, Bldg 5
Alexandria, VA 22314

SHIPPED TO CODE W15HZS

Directorate of Logistics
Supply Services Division
Fuel Yard
Fort Monmouth, NJ 07703

14. MARKED FOR CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION | 17. QUANTITY SHIP/REC'D | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 45-462 | Burner Oil #2<br>TICKET 48389 GALLONS 6982.7 | 6,982.7 | gal | .74 | $5,167.- |

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

PQA [ ] ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

[ ] PQA [x] ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

5-3-94

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted

5-3-94

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

CONTRACTOR USE ONLY

97X4930.5CF001.26.1 S44203 000000/D/RR W15HZS 41

722896.530.000000 LM222.4 /4L5116 99-4144-2005

AND
ECEIVING REPORT

DLA600-92-D-4192 ... 2V 34 ... D

| 3 DATE SHIPPED | 4 B/L | 5 DISCOUNT TERMS |
|---|---|---|
| 3 | 9 May 94 | 101 | NET 30 |

CONTRACTOR CODE 00006079

Premier O&G Supply Co., Inc.
T/A CP PO Box 1071A
673 New Brunswick Ave, Rahway, NJ

10 ADMINISTERED BY CODE SC0600
Defense Fuel Supply Center
Cameron Station
Alexandria, VA 22314

12 PAYMENT WILL BE MADE BY CODE SA4900
Defense Fuel Supply Center
ATTN: DFSC-CDX
Cameron Station, Bldg 5
Alexandria, VA 22314

SHIPPED TO CODE W15HZS
Directorate of Logistics
Supply Services Division
Fuel Yard
Fort Monmouth, NJ 07703

14. MARKED FOR CODE
Bldg 2700

| ITEM NO | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number) | 17. QUANTITY SHIP/REC'D | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 45-462 | Burner Oil #2 | 7,487.7 | gal | .74 | $ 5,540.90 |
| | TICKET GALLONS | | | | |
| | 48604 7487.7 | | | | |

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN
PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

B. DESTINATION
☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
5-9-94
DATE SIGNATURE OF AUTH GOVT REP
TYPED NAME AND TITLE

22. RECEIVER'S USE
Quantities shown in column 17 were received in apparent good condition except as noted

5-9-94 [signature]
DATE RECEIVED SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle

CONTRACTOR USE ONLY

97X4930.5CF001.26.1 S33150 000000/A/RR W15HZS 4105-02

722896.530.000000 LMZZ74 4ES116 99-4144-2003

AND
RECEIVING REPORT

DLA600-92-D-4192 ... 2V 34

D

4

13 May 94

101

NET 30

00006879

Premier O&G Supply Co., Inc.
T/A CP PO Box 1071A
673 New Brunswick Ave, Rahway, NJ

SC0600
Defense Fuel Supply Center
Cameron Station
Alexandria, VA 22314

12 PAYMENT WILL BE MADE BY
SA4900
Defense Fuel Supply Center
ATTN: DFSC-CDX
Cameron Station, Bldg 5
Alexandria, VA 22314

W15HZS
Directorate of Logistics
Supply Services Division
Fuel Yard
Fort Monmouth, NJ 07703

14. MARKED FOR
Bldg 2700

| ITEM NO | STOCK/PART NO. DESCRIPTION | QUANTITY SHIP/REC'D | UNIT | UNIT PRICE | AMOUNT |
|---|---|---|---|---|---|
| 45-462 | Burner Oil #2 | 6,971.5 | gal | .74 | $5,158.91 |
| | TICKET 48603 GALLONS 6971.5 | | | | |

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN
PQA [ ] ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE  SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

B. DESTINATION
[ ] PQA [x] ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.
Barbara C. Moffett
5-13-94
DATE  SIGNATURE OF AUTH GOVT REP
TYPED NAME AND TITLE

22. RECEIVER'S USE
Quantities shown in column 17 were received in apparent good condition except as noted.
5-13-94
DATE RECEIVED  SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE
* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

CONTRACTOR USE ONLY

97X4930.5CF001.26.1 S33150 000000/A/RR  W15HZS 4105-02

722896.J30.000000 LMZZZ4 4LJ116 99-4144-2002

MAY

ECEIVING REPORT | DLA600-92-D-4192 | 2V 34 | D

5 | 18 May 94 | 101 | NET 30

CONTRACTOR CODE 00006079

Premier O&G Supply Co., Inc.
T/A CP PO Box 1071A
673 New Brunswick Ave, Rahway, NJ

ADMINISTERED BY CODE SC0600
Defense Fuel Supply Center
Camerdn Station
Alexandria, VA 22314

PAYMENT WILL BE MADE BY CODE SA4900
Defense Fuel Supply Center
ATTN: DFSC-CDX
Cameron Station, Bldg 5
Alexandria, VA 22314

SHIPPED TO CODE W15HZS
Directorate of Logistics
Supply Services Division
Fuel Yard
Fort Monmouth, NJ 07703

MARKED FOR: Bldg 2700

| ITEM NO | STOCK/PART NO. DESCRIPTION | QUANTITY SHIP/REC'D | UNIT | UNIT PRICE | AMOUNT |
|---|---|---|---|---|---|
| 45-462 | Burner Oil #2 | 7,522.5 | gal | .74 | $5,566.65 |
| | TICKET 49127 GALLONS 7522.5 | | | | |

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN
PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

B. DESTINATION
☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
5-18-94
DATE | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND TITLE

22. RECEIVER'S USE
Quantities shown in column 17 were received in apparent good condition except as noted.

5-18-94 | Fred Walley
DATE RECEIVED | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

CONTRACTOR USE ONLY

97X4930.5CF001.26.1 S33150 000000/A/RR W15HZS 4105-0

722896.J30.000000 LMZZZ.4 4LJ116 99-4144-2001

# MATERIAL INSPECTION AND RECEIVING REPORT

DLA600- 92-D-4192 | 2V 45 | 15 JUL 94

6. ACCEPTANCE POINT: D

| SHIPMENT NO. | 3. DATE SHIPPED | 4. B/L | 5. DISCOUNT TERMS |
|---|---|---|---|
| 1 | 11 Jul 94 | TCN | NET 30 |

**PRIME CONTRACTOR** CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

**10. ADMINISTERED BY** CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

**SHIPPED FROM (if other than 9)** CODE FOB:

**12. PAYMENT WILL BE MADE BY** CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

**SHIPPED TO** CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

**14. MARKED FOR** CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 45-462 | Burner Oil #2 | 7,473.9 | GL | .74 | $5,530.69 |
| | ticket #50832 | | | | |

**21. PROCUREMENT QUALITY ASSURANCE**

**A. ORIGIN**

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

**B. DESTINATION**

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

7-11-94

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

**22. RECEIVER'S USE**

Quantities shown in column 17 were received in apparent good condition except as noted.

7-11-94

DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

**23. CONTRACTOR USE ONLY**

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4192-0045

722896.J30.000000 LMZZZ.4. 4LJ116 99-4214-2006

DD FORM 250 | REPLACES EDITION OF 1 AUG 87 WHICH MAY BE USED

**...PECTION AND ...CEIVING REPORT**

DLA600- 92-D-4192 | 2V 45 | 1 1

8. ACCEPTANCE POINT: D

| SHIPMENT NO. | 3. DATE SHIPPED | 4. B/L | 5. DISCOUNT TERMS |
|---|---|---|---|
| 3 2 | 14 Jul 94 | TCN | NET 30 |

**PRIME CONTRACTOR** CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

**10. ADMINISTERED BY** CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

**SHIPPED FROM (if other than 9)** CODE FOB:

**12. PAYMENT WILL BE MADE BY** CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

**SHIPPED TO** CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

**14. MARKED FOR** CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 45-1462 | Burner Oil #2<br>ticket # 41374 | 6,889.9 | GL | .74 | $5,098.53 |

**21. PROCUREMENT QUALITY ASSURANCE**

**A. ORIGIN**

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

**B. DESTINATION**

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

7-14-94

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

**22. RECEIVER'S USE**

Quantities shown in column 17 were received in apparent good condition except as noted.

7-14-94 Ted Smythe

DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

**23. CONTRACTOR USE ONLY**

97X4930.5CFO 01 26.1 S33150 000000/A/RR W15HZS 4192-0045

722896.J30..000000 LMzzz.4 4LJ116 99-4214-2004

DD FORM 1 NOV 84 250 REPLACES EDITION OF 1 AUG 67 WHICH MAY BE USED

INSPECTION AND RECEIVING REPORT

DLA600- 92-D-4192

2V 45

1 1

8 ACCEPTANCE POINT D

| SHIPMENT NO. | 3. DATE SHIPPED | 4. B/L | 5 DISCOUNT TERMS |
|---|---|---|---|
| 34 | 25 Jul 94 | TCN | NET 30 |

PRIME CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10 ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY * SHIP/REC'D | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 45-462 | Burner Oil #2 | 7,440.4 | GL | .74 | $5,505.9 |
| | ticket # 52544 | | | | |

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

7-25-94

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

7-25-94

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by ( ✓ ) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CFO 01 26.1 S33150 000000/A/RR W15HZS 4138-0244

722896.530.000000 LMZZZ.4 4LJ116 99-4214-2003

DD FORM 250 REPLACES EDITION OF 1 AUG 87 WHICH MAY BE USED

...ION
...G REPORT

| 1. PROC. INSTRUMENT IDEN. (CONTRACT) | | | 8 ACCEPTANCE POINT |
|---|---|---|---|
| DLA600- 92-D-4192 | 2V 45 | | D |

| NO. | 3. DATE SHIPPED | 4. B/L | 5 DISCOUNT TERMS |
|---|---|---|---|
| 7 | 28 July 94 | TCN | NET 30 |

E CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10 ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

...PED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

...PPED TO CODE

...rectorate of Installation Logistics
...pply Services Division
...el Oil Branch
...rt Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 1220 and 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 5- 462 | Burner Oil #2 | 13,890.6 | GL | .74 | $10,279.04 |
| | Ticket #'s 52660 - 6,455.2 gals<br>52661 - 7,435.4 gals | | | | |

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
7-28-94

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

7-28-94 [signature]

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by ( ✓ ) mark, if different, enter actual quantity received below quantity shipped and encircle.

CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4138-0244

722896.530.000000 LMZZ2.4 4LJ116 99-4214-2000
Bldg 1220 - 6,455.2 gals
Bldg 2700 - 7,435.4 gals

MATERIAL INSPECTION AND RECEIVING REPORT

1. PROC. INSTRUMENT IDEN. (CONTRACT): DLA600- 92-D- 4129

2V 50

14Aug94

8. ACCEPTANCE POINT: D

| SHIPMENT NO. | 3. DATE SHIPPED | 4. B/L | 5. DISCOUNT TERMS |
|---|---|---|---|
| 1 | 12 Aug 94 | TCN | NET 30 |

PRIME CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>ticket # 53318 | 6,878 | GL | .78 | $5,364.84 |

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

8-12-94

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

8-12-94 | Tom Walley

DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4206-0050

722896.J30 000000 LMZZZ4 4LJ116 99-4256-2008

DD FORM 1 NOV 84 250 REPLACES EDITION OF 1 AUG 87 WHICH MAY BE USED

# ...IAL INSPECTION AND ...CEIVING REPORT

1. PROC. INSTRUMENT IDEN. (CONTRACT): DLA600- 92-D- 4129

2V 50

1 1

8. ACCEPTANCE POINT: D

...MENT NO.: 2

3. DATE SHIPPED: 15 Aug 94

4. B/L

TCN

5. DISCOUNT TERMS: NET 30

PRIME CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE

FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>ticket # 53319 | 7,459.1 | GL | .78 | $5,818.10 |

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

8-15-94 Barbara C. Moffett

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

8-15-94 Ted Smith

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4206-0050

722896.530 000000 LM2224 4LJ116 99-4256-2007

DD FORM 250 REPLACES EDITION OF 1 AUG 87 WHICH MAY BE USED

…L INSPECTION AND …ECEIVING REPORT

DLA600- 92-D- 4129

2V50

1 1

8. ACCEPTANCE POINT: D

| SHIPMENT NO. | 3. DATE SHIPPED | 4. B/L | 5. DISCOUNT TERMS |
|---|---|---|---|
| 5 | 26 Aug 94 | TCN | NET 30 |

**PRIME CONTRACTOR** CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

**10. ADMINISTERED BY** CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

**SHIPPED FROM (if other than 9)** CODE FOB:

**12. PAYMENT WILL BE MADE BY** CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

**SHIPPED TO** CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

**14. MARKED FOR** CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>ticket # 53753 | 7,452.9 | GL | .78 | $5,813.26 |

**21. PROCUREMENT QUALITY ASSURANCE**

**A. ORIGIN**

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

**B. DESTINATION**

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
8-26-94

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

**22. RECEIVER'S USE**

Quantities shown in column 17 were received in apparent good condition except as noted.

8-26-94 [signature]

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

**23. CONTRACTOR USE ONLY**

97X4930.5CFO 01 26.1 S33150 000000/A/RR W15HZS 4206-0050

722896.530.000000 LMZZZ4 4L5116 99-4256-2004

DD FORM 1 NOV 84 250 REPLACES EDITION OF 1 AUG 87 WHICH MAY BE USED

INSPECTION AND [RE]CEIVING REPORT

DLA600-92-D-4129 | 2V50 | 1 1

8 ACCEPTANCE POINT: D

[SHIPM]ENT NO.: 6

3. DATE SHIPPED: 29Aug94

4. B/L: TCN

5 DISCOUNT TERMS: NET 30

[PRIM]E CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ. 07065

10 ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE | FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>ticket # 53752 | 7,460.7 | GL | .78 | $5,819.35 |

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ PQA ☐ ACCEPTANCE of listed items has [be]en made by me or under my supervision and they [co]nform to contract, except as noted herein or on [sup]porting documents.

DATE | SIGNATURE OF AUTH GOVT REP

[TY]PED NAME [AN]D OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffat

8-29-94

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

8-29-94

DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

[2]3. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR

W15HZS 4206-0050

722896.J30.000000 LMZZZ4 4LJ116 99-4256-2003

DD FORM 1 NOV 88 250

REPLACES EDITION OF 1 AUG 87 WHICH MAY BE USED

# ... INSPECTION AND ...ECEIVING REPORT

DLA600-94-D- 4129 | 2V58 | 1 SEP 94

6. ACCEPTANCE POINT: D

| ...PMENT NO. | 3. DATE SHIPPED | 4. B/L | 5. DISCOUNT TERMS |
|---|---|---|---|
| 2 | 8 Sep 94 | TCN | NET 30 |

**...RIME CONTRACTOR** CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

**10. ADMINISTERED BY** CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

**...HIPPED FROM (if other than 9)** CODE FOB:

**12. PAYMENT WILL BE MADE BY** CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

**SHIPPED TO** CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

**14. MARKED FOR** CODE

Bldg. 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br><br>Ticket # 54089 | 7,467.7 | GL | .78 | $5,824.81 |

**PROCUREMENT QUALITY ASSURANCE**

**A. ORIGIN**

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

**B. DESTINATION**

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

9-8-94

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

**22. RECEIVER'S USE**

Quantities shown in column 17 were received in apparent good condition except as noted.

9-8-94

DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

**CONTRACTOR USE ONLY**

97X4930.5CF0 01 26.1 S33150 000000/A/RR

W15HZS 4234-0058

722896.J30.000000 LMZZZ.4 4LJ+1B 99-4276-2003

INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 | 2V58 | 1 1

ACCEPTANCE POINT: D

SHIPMENT NO.: 3
3. DATE SHIPPED: 9 Aug 94
4. B/L: TCN
5. DISCOUNT TERMS: NET 30

PRIME CONTRACTOR CODE
Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE
Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE
Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE
Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE
Bldg 1220 + 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>Ticket # 54090<br>Ticket # 54162 | 14,961.8 | GL | .78 | $11,670.20 |

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN
☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

B. DESTINATION
☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
9-9-94

DATE | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND TITLE

22. RECEIVER'S USE
Quantities shown in column 17 were received in apparent good condition except as noted.

9-9-94 | [signature]
DATE RECEIVED | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4234-0058

722896.J30.000000 LMZZ2.4 4LJ116 99-4276-2002

Bldg 1220 – 7,462.4 gals
Bldg 2700 – 7,499.4 gals

DD FORM 250 | REPLACES EDITION OF 1 AUG 87 WHICH MAY BE USED

[redacted] [redacted]

**…IAL INSPECTION AND …ECEIVING REPORT**

DLA600-94-D- 4129

2V 58

1 1

8. ACCEPTANCE POINT: D

| …MENT NO. | 3. DATE SHIPPED | 4. B/L | 5. DISCOUNT TERMS |
|---|---|---|---|
| 4 | 22 Aug 94 | TCN | NET 30 |

**…E CONTRACTOR** CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

**10. ADMINISTERED BY** CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

**…PPED FROM (if other than 9)** CODE FOB:

**12. PAYMENT WILL BE MADE BY** CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

**…PPED TO** CODE

…irectorate of Installation Logistics
…upply Services Division
…uel Oil Branch
…ort Monmouth, NJ 07703-5000

**14. MARKED FOR** CODE

Bldg. 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| …3-462 | Burner Oil #2 | 6,914.9 | GL | .78 | $5,393.62 |
| | ticket # 54826 | | | | |

**21. PROCUREMENT QUALITY ASSURANCE**

**A. ORIGIN**

☐ PQA ☐ ACCEPTANCE of listed items has … made by me or under my supervision and they … to contract, except as noted herein or on … porting documents.

DATE SIGNATURE OF AUTH GOVT REP

…D NAME … OFFICE

**B. DESTINATION**

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

9-22-94 Barbara C. Moffett

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

**22. RECEIVER'S USE**

Quantities shown in column 17 were received in apparent good condition except as noted.

9-22-94 [signature]

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

**…ONTRACTOR USE ONLY**

97X4930.5CF0 01 26.1 S33150 000000/A/RR

W15HZS
4234-0058

722896.J30.000000 LMZZ.4 4LJ116 99-4276-2001

...SPECTION ...ND ...VING REPORT

DLA600-94-D- 4129 2V 58

1 1

8. ACCEPTANCE POINT D

| ...NO. | 3. DATE SHIPPED | 4. B/L | 5. DISCOUNT TERMS |
|---|---|---|---|
| 5 | 23 Aug 94 | TCN | NET 30 |

| ...E CONTRACTOR CODE | 10. ADMINISTERED BY CODE |
|---|---|
| Premier O&G Supply Co.,<br>T/A CPO<br>673 Brunswick Ave., Box 1071A,<br>Rahway, NJ 07065 | Defense Fuel Supply Center<br>ATTN: DFAS-CO/DFSC-RFFP<br>Cameron Station Bldg 8<br>Alexandria, VA 22304-6160 |
| ...PPED FROM (if other than 9) CODE FOB: | 12. PAYMENT WILL BE MADE BY CODE |
| | Defense Finance/Accounting Service, Columbus Center<br>Stock Fund Directorate<br>Fuels Accounting and Payments Division<br>ATTN: DFAS-CO-SFFP, P.O. Box 182317<br>Columbus, OH 43218-6252 |
| ...PPED TO CODE | 14. MARKED FOR CODE |
| ...irectorate of Installation Logistics<br>...upply Services Division<br>...uel Oil Branch<br>...rt Monmouth, NJ 07703-5000 | Bldg 2700 |

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| ...3-4462 | Burner Oil #2<br>ticket # 54827 | 7,501.4 | GL | .78 | $5,851.09 |

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

9-23-94

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

9-23-94 Ted Smith

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4234-0058

722896.T30.000000 LMZZZ.4 4LJ116 : 99-4276-2000

DD FORM 250 REPLACES EDITION OF 1 AUG 87 WHICH MAY BE USED

MATERIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 | 2V 60 | 8. ACCEPTANCE POINT: D

| SHIPMENT NO. | 3. DATE SHIPPED | 4. B/L | 5. DISCOUNT TERMS |
|---|---|---|---|
| 1 | 5 Oct 94 | TCN | NET 30 |

PRIME CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>TICKET NR. GALLONS<br>55491 7531.7 | 7,531.7 | GL | .78 | $5,874.73 |

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

10-5-94

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

10-5-94

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4270-0060

722896.J30.000000 5LJ116 LMZZZ5 99-4304-2018

# MATERIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 | 2V 60 | 1 1

6. ACCEPTANCE POINT: D

2. SHIPMENT NO.: 2

3. DATE SHIPPED: 7 Oct 94

4. B/L: TCN

5. DISCOUNT TERMS: NET 30

9. PRIME CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

11. SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 1220 and 2700

| 15. ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>TICKET NR. GALLONS<br>55700 7485<br>55490 7407 | 14,892 | GL | .78 | $ 11,615.76 |

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

10-7-94

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

10-7-94 | [signature]

DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4270-0060

722896.J30.000000 LMZZZ5 5LJ116 99-4304-2017

Bldg 1220 - 7,485 gals

Bldg 2700 - 7,407 gals.

DD FORM 1 NOV 88 250 REPLACES EDITION OF 1 AUG 87 WHICH MAY BE USED

...RIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 | 2V 60 | 1 1

8. ACCEPTANCE POINT: D

| 2. SHIPMENT NO. | 3. DATE SHIPPED | 4. B/L | 5. DISCOUNT TERMS |
|---|---|---|---|
| 4 | 17 Oct 94 | TCN | NET 30 |

**9. PRIME CONTRACTOR** CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

**10. ADMINISTERED BY** CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

**11. SHIPPED FROM (if other than 9)** CODE FOB:

**12. PAYMENT WILL BE MADE BY** CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

**13. SHIPPED TO** CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

**14. MARKED FOR** CODE

Bldg 2700

| 15. ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2 | 7,487.1 | GL | .78 | $5,839.94 |
| | TICKET NR. GALLONS | | | | |
| | 56289 7487.1 | | | | |

**21. PROCUREMENT QUALITY ASSURANCE**

**A. ORIGIN**

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

**B. DESTINATION**

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

10-17-94

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

**22. RECEIVER'S USE**

Quantities shown in column 17 were received in apparent good condition except as noted.

10-17-94 | Ted Smythe

DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

**23. CONTRACTOR USE ONLY**

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4270-0060

722896.J30.000000 LMIZZ5 5LJ.H6, 99-4304-2015

DD FORM 1 NOV 88 250 REPLACES EDITION OF 1 AUG 87 WHICH MAY BE USED

MATERIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 2V 60

1 1

8. ACCEPTANCE POINT D

| SHIPMENT NO. | 3. DATE SHIPPED | 4. B/L | 5. DISCOUNT TERMS |
|---|---|---|---|
| 5 | 18 Oct 94 | TCN | NET 30 |

PRIME CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>TICKET NR. GALLONS<br>56290 7555.7 | 7,555.7 | GL | .78 | $ 5,893.45 |

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

10-18-94

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

10-18-94 [signature]

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4270-0060

722896.J30.000000LM2225 5LJ116 99-4304-2014

DD FORM 250 REPLACES EDITION OF 1 AUG 87 WHICH MAY BE USED

# MATERIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 2V 60

| | |
|---|---|
| 1 | 1 |
| 8. ACCEPTANCE POINT | D |

| 2. SHIPMENT NO. | 3. DATE SHIPPED | 4. B/L | 5. DISCOUNT TERMS |
|---|---|---|---|
| 8 | 27 Oct 94 | TCN | NET 30 |

**9. PRIME CONTRACTOR** CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

**10. ADMINISTERED BY** CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

**11. SHIPPED FROM (if other than 9)** CODE FOB:

**12. PAYMENT WILL BE MADE BY** CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

**13. SHIPPED TO** CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

**14. MARKED FOR** CODE

Bldg 2700

| 15. ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>TICKET NR. GALLONS<br>56742 7426 | 7,426 | GL | .78 | $5,792.28 |

**21. PROCUREMENT QUALITY ASSURANCE**

**A. ORIGIN**

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

**B. DESTINATION**

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

10-27-94

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

**22. RECEIVER'S USE**

Quantities shown in column 17 were received in apparent good condition except as noted.

10-27-94 Ted Smythe

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

**23. CONTRACTOR USE ONLY**

97X4930.5CF0,01 26.1 S33150 000000/A/RR W15HZS 4270-0060

722896.J30.000000 LMZZZ5 5LJ116 99-4304-2011

DD FORM 1 NOV 83 250 REPLACES EDITION OF 1 AUG 87 WHICH MAY BE USED

...TERIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 | 2V 60 | 8. ACCEPTANCE POINT: D

| 2. SHIPMENT NO. | 3. DATE SHIPPED | 4. B/L TCN | 5. DISCOUNT TERMS |
|---|---|---|---|
| 9 | 28 Oct 94 | | NET 30 |

**PRIME CONTRACTOR** CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

**10. ADMINISTERED BY** CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

**SHIPPED FROM (if other than 9)** CODE FOB:

**12. PAYMENT WILL BE MADE BY** CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

**SHIPPED TO** CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

**14. MARKED FOR** CODE

Bldg 1220 + 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>TICKET NR. GALLONS<br>57070 7313.1<br>57071 5605 | 12,918.1 | GL | .78 | $ 10,076.12 |

**21. PROCUREMENT QUALITY ASSURANCE**

**A. ORIGIN**

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

**B. DESTINATION**

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

10-28-94

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

**22. RECEIVER'S USE**

Quantities shown in column 17 were received in apparent good condition except as noted.

10-28-94 [signature]

DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

**23. CONTRACTOR USE ONLY**

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4270-0060

722896.J30.000000 LMZZZ5 5LJ116 99-4304-2010

Bldg 1220 - 7313.1 gal
2700 - 5605 gal

REPLACES EDITION OF 1 AUG 67 WHICH MAY BE USED

RECEIVING REPORT

DLA600-94-D-4129 2V 71

Dec 94

6. ACCEPTANCE POINT: D

| 2. SHIPMENT NO. | 3. DATE SHIPPED | 4. B/L | 5. DISCOUNT TERMS |
|---|---|---|---|
| 1 | 5 Dec 94 | TCN | NET 30 |

**PRIME CONTRACTOR** CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

**10. ADMINISTERED BY** CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

**SHIPPED FROM (if other than 9)** CODE FOB:

**12. PAYMENT WILL BE MADE BY** CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

**SHIPPED TO** CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

**14. MARKED FOR** CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>TICKET NR. GALLONS<br>59698 7568.6 | 7,568.6 | GL | .59 | $4,465.47 |

**21. PROCUREMENT QUALITY ASSURANCE**

**A. ORIGIN**

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

**B. DESTINATION**

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

12-5-94

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

**22. RECEIVER'S USE**

Quantities shown in column 17 were received in apparent good condition except as noted.

12-5-94 J McNalley

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CFO 01 26.1 S33150 000000/A/RR W15HZS 4322-0071

722896.J30.000000.LMZZ2.5 5LJ116 99-4363-2003

DD FORM 1 MAY 88 250 REPLACES EDITION OF 1 AUG 87 WHICH MAY BE USED

AND
RECEIVING REPORT

DLA600-94-D-4129 2V 71

1 1
8. ACCEPTANCE POINT
D

| SHIPMENT NO. | 3. DATE SHIPPED | 4. B/L | 5. DISCOUNT TERMS |
|---|---|---|---|
| 2 | 12 Dec 94 | TCN | NET 30 |

PRIME CONTRACTOR CODE
Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE
Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE
Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE
Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE
Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>TICKET NR. GALLONS<br>60113 7572.2 | 7,572.2 | GL | .59 | $4,467.60 |

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN
☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

B. DESTINATION
☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
12-13-94
DATE SIGNATURE OF AUTH GOVT REP
TYPED NAME AND TITLE

22. RECEIVER'S USE
Quantities shown in column 17 were received in apparent good condition except as noted.

12-12-94 Ted Smythe
DATE RECEIVED SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY
97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4322-0071

722896.J30.000000.LMZZZ.5 5LJ116 99-4363-2002

DD Form 250 REPLACES EDITION OF 1 AUG 87 WHICH MAY BE USED

RECEIVING REPORT

DLA600-94-D-4129 2V 71

6 ACCEPTANCE POINT: D

2. SHIPMENT NO.: 3

3. DATE SHIPPED: 19 Dec 94

4. B/L: TCN

5. DISCOUNT TERMS: NET 30

PRIME CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service; Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>TICKET NR. GALLONS<br>60842 6970.8 | 6,970.8 | GL | .59 | $4,112.77 |

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

12-19-92

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

12-19-94 Ted Smythe

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by ( ✓ ) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4322-0071

722896.J30.000000.LMZZZ.5 SLJ116 99-4363-2001

DD FORM 250 (NOV 84) REPLACES EDITION OF 1 AUG 67 WHICH MAY BE USED

AND RECEIVING REPORT

DLA600-94-D-4129 2V 71

8. ACCEPTANCE POINT: D

| NO. | 3. DATE SHIPPED | 4. B/L | 5. DISCOUNT TERMS |
|---|---|---|---|
| 4 | 20 Dec 94 | | NET 30 |

**CONTRACTOR** CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

**10. ADMINISTERED BY** CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

**SHIPPED FROM (if other than 9)** CODE FOB:

**12. PAYMENT WILL BE MADE BY** CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

**SHIPPED TO** CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

**14. MARKED FOR** CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2 | 7,070.9 | GL | .59 | $4,171.83 |
| | TICKET NR. GALLONS | | | | |
| | 61127 7070.9 | | | | |

**PROCUREMENT QUALITY ASSURANCE**

**A. ORIGIN**

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

**B. DESTINATION**

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

12-20-94

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

**22. RECEIVER'S USE**

Quantities shown in column 17 were received in apparent good condition except as noted.

12-20-94 Ted Smith

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4322-0071

722896.T30.000000 LMZZZ.5 5LJ116 99-4363-2000

RECEIVING REPORT

DLA600-94-D-4129 2V 71

1 1

8. ACCEPTANCE POINT D

| SHIPMENT NO. | 3. DATE SHIPPED | 4. B/L | 5. DISCOUNT TERMS |
|---|---|---|---|
| 5 | 28 Dec 94 | TCN | NET 30 |

PRIME CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>TICKET NR. GALLONS<br>62151 7556.5 | 7,556.5 | GL | .59 | $4,458.34 |

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

12-28-94

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

12-28-94 [signature]

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4322-0071

722896.J30.000000 LMZZZ.5 5LJ116 99-4363-2011

DD FORM 250 REPLACES EDITION OF 1 AUG 67 WHICH MAY BE USED

AND RECEIVING REPORT

DLA600-94-D-4129 | 2V 71 | 1 1

ACCEPTANCE POINT: D

SHIPMENT NO.: 6

3. DATE SHIPPED: 30 Dec 94

4. B/L: TCN

5. DISCOUNT TERMS: NET 30

PRIME CONTRACTOR — CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY — CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) — CODE — FOB:

12. PAYMENT WILL BE MADE BY — CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO — CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR — CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>TICKET NR. GALLONS<br>62152 7615.8 | 7,615.8 | GL | .59 | $ 4,493.32 |

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE — SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

12-30-94

DATE — SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

12-30-94 — [signature]

DATE RECEIVED — SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4322-0071

722896.J30.000000 LMZZZ.5 5LJ116 99-5004-2001

DD FORM 250 — REPLACES EDITION OF 1 AUG 87 WHICH MAY BE USED

MATERIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 2V 76

6. ACCEPTANCE POINT: D

JAN 95

2. SHIPMENT NO.: 1
3. DATE SHIPPED: 3 Jan 95
4. B/L TCN
5. DISCOUNT TERMS: NET 30

7. PRIME CONTRACTOR CODE
Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE
Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

9. SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE
Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO CODE
Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE
Bldg 2700

| 15. ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D* | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>TICKET NR. GALLONS<br>27808 7585.5 | 7585.5 | GL | .59 | $4,475.45 |

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN
☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

B. DESTINATION
☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
1-3-95

DATE | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND TITLE

22. RECEIVER'S USE
Quantities shown in column 17 were received in apparent good condition except as noted.

1-3-95 Ted Smyth
DATE RECEIVED | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✔) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY
97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4350-0076

722896.J30.000000 LM ZZZ.5 5ZJ116 99-5018-2009

DD FORM 250 | REPLACES EDITION OF 1 AUG 67 WHICH MAY BE USED

MATERIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 2V 76

6. ACCEPTANCE POINT: D

| 2. SHIPMENT NO. | 3. DATE SHIPPED | 4. B/L | 5. DISCOUNT TERMS |
|---|---|---|---|
| 2 | 9 Jan 95 | TCN | NET 30 |

PRIME CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service; Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bedg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D* | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2 | 7,542.6 | GL | .59 | $ 4,450.13 |
| | TICKET NR. GALLONS | | | | |
| | 62720 7542.6 | | | | |

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

1-9-95

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

1-9-95 [signature]

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4350-0076

722896.J30.000000 LMZZ2.5 5LJ116 99-5018-2008

DD FORM 1 NOV 84 250 REPLACES EDITION OF 1 AUG 67 WHICH MAY BE USED

**[MAT]ERIAL INSPECTION AND RECEIVING REPORT**

DLA600-94-D-4129 | 2V 76 | | 1 / L | 8. ACCEPTANCE POINT: D

| [SHI]PMENT NO. | 3. DATE SHIPPED | 4. B/L | 5. DISCOUNT TERMS |
|---|---|---|---|
| 3 | 13 Jan 95 | TCN | NET 30 |

[PRI]ME CONTRACTOR — CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY — CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) — CODE — FOB:

12. PAYMENT WILL BE MADE BY — CODE

Defense Finance/Accounting Service; Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

[1]3. SHIPPED TO — CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR — CODE

Bldg 2700

| [15.] ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>TICKET NR. GALLONS<br>63630 7548 | 7,548 | GL | .59 | $4,453.32 |

[2]1. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE — SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

1-13-95

DATE — SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

1-13-95 — Ted Smyth[illegible]

DATE RECEIVED — SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4350-0076

722896.J30.000000 LMZZZ.5 5LJ116 99-5018-2007

DD FORM 1 NOV 64 250 — REPLACES EDITION OF 1 AUG 67 WHICH MAY BE USED

# ...RIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 | 2V 76

8. ACCEPTANCE POINT: D

1 1

| SHIPMENT NO. | 3. DATE SHIPPED | 4. B/L | 5. DISCOUNT TERMS |
|---|---|---|---|
| 4 | 20 Jan 95 | TCN | NET 30 |

**PRIME CONTRACTOR** CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

**10. ADMINISTERED BY** CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

**SHIPPED FROM (if other than 9)** CODE FOB:

**12. PAYMENT WILL BE MADE BY** CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

**SHIPPED TO** CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

**14. MARKED FOR** CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>TICKET NR. GALLONS<br>64548 7549 | 7,549 | GL | .59 | $4,453.91 |

**21. PROCUREMENT QUALITY ASSURANCE**

**A. ORIGIN**

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

**B. DESTINATION**

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

1-20-95

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

**22. RECEIVER'S USE**

Quantities shown in column 17 were received in apparent good condition except as noted.

1-20-95 | Ted Smythe

DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

**23. CONTRACTOR USE ONLY**

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4350-0076

722896.J30.000000 LMZZ2.5 5LJ116 99-5024-2000

DD FORM 250 | PREVIOUS EDITION OF 1 AUG 87 MAY BE USED

MATERIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 | 2V 76 | 8. ACCEPTANCE POINT D

| SHIPMENT NO. | 3. DATE SHIPPED | 4. B/L | 5. DISCOUNT TERMS |
|---|---|---|---|
| 5 | 24 Jan 95 | TCN | NET 30 |

PRIME CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>TICKET NR. GALLONS<br>64848 7596.5 | 7,596.5 | GL | .59 | $4,481.94 |

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

1-24-95

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

1-24-95 Ami Walker

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W151ZS 4350-0076

722896.J30.000000 LMZZ2.5 5LJ116 99-5026-2000

DD FORM 250 REPLACES EDITION OF 1 AUG 67 WHICH MAY BE USED

MATERIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 | 2V 76

6. ACCEPTANCE POINT: D

2. SHIPMENT NO.: 6
3. DATE SHIPPED: 31 Jan 95
4. B/L TCN
5. DISCOUNT TERMS: NET 30

9. PRIME CONTRACTOR CODE
Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE
Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

11. SHIPPED FROM (if other than 9) CODE | FOB:

12. PAYMENT WILL BE MADE BY CODE
Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO CODE
Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE
Bldg 2700

| 15. ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>TICKET NR. GALLONS<br>65608 7590.1 | 7,590.1 | GL | .59 | $4,478.16 |

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN
☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

B. DESTINATION
☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
1-31-95
DATE | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND TITLE

22. RECEIVER'S USE
Quantities shown in column 17 were received in apparent good condition except as noted.

1-31-95 | [signature]
DATE RECEIVED | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY
97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4350-0076

722896,J30.000000 LMZZZ.5 5LJ116 99-5032-2000

DD FORM 250 | PREVIOUS EDITION OF 1 AUG 67 MAY BE USED

DLA600-94-D-4129 ... 27 83 ... ACCEPTANCE POINT D

...PORT

| 2. SHIPMENT NO. | 3. DATE SHIPPED | 4. B/L | 5. DISCOUNT TERMS |
|---|---|---|---|
| 4 | 13 Feb 95 | TCN | NET 30 |

Feb95

PRIME CONTRACTOR CODE

Premier OSG Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-FFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (If other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service; Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>TICKET NR. GALLONS<br>66910 7574.3 | 7,574.3 | GL | .59 | $4,465.84 |

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

2-13-95

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

2-13-95 [signature]

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR NIS-ZS 5023-0083

722896 J30.000000 LMZZZ.5 5LJ116 99-5045-2010

DLA600-94-D-4129 | 2V 83 | ACCEPTANCE POINT D

5 | 3. DATE SHIPPED 17 Feb 95 | 4. B/L TCN | 5. DISCOUNT TERMS NET 30

CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE FOB

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE

irectorate of Installation Logistics
upply Services Division
uel Oil Branch
ort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D* | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>TICKET NR. GALLONS<br>66909 7578.1 | 7,578.1 | GL | .59 | $4,471.08 |

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN
☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

B. DESTINATION
☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

2-17-95 | Barbara C. Moffett
DATE | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

2-17-95 | Ted Smythe
DATE RECEIVED | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR NISHZS 5023-0083

722896.J30.000000 LMZZZ.5 SLJ116 99-5052-2000

DD FORM 250 | PREVIOUS EDITION OF 1 AUG 87 MAY BE USED

DLA600-94-D-4129 | 27 83 | ACCEPTANCE POINT D.

| 6 | DATE SHIPPED 21-feb95 | B/L TCN | DISCOUNT TERMS NET 30 |
|---|---|---|---|

PRIME CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-FFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>TICKET NR. GALLONS<br>67650 7590.4 | 7,590.4 | GL | .59 | $4,478.34 |

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

2-21-95

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

2-21-95 [signature]

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 5023-0083

722896.530.000000 LMZZZ.5 5LJ116 99-5053-20

DD FORM 250 REPLACES EDITION OF 1 AUG 67 WHICH MAY BE USED

DLA600-94-D-4129 27 83

...EPORT

| 2. | 3. DATE SHIPPED | 4. B/L | 5. DISCOUNT TERMS |
|---|---|---|---|
| 7 | 23 Feb 95 | TCN | NET 30 |

PRIME CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-FFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>TICKET NR. GALLONS<br>67649 7636.1 | 7,636.1 | GL | .59 | $4,505.30 |

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

2-23-95

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

2-23-95 Ted Smythe

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 5023-0083

722896.J30.000000 LMZZZ.5 5LJ116 99-5054-2000

DD FORM 250 PREVIOUS EDITION OF 1 AUG 87 MAY BE USED

DLA600-94-D-4129 27 83 | 8. ACCEPTANCE POINT D

| 8 | 3. DATE SHIPPED 28 feb 95 | 4. B/L TCN | 5. DISCOUNT TERMS NET 30 |
|---|---|---|---|

PRIME CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>TICKET NR. GALLONS<br>68425 7658.5 | 7,658.5 | GL | .59 | $4,518.52 |

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

2-28-95

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

2-28-95

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by ( ✓ ) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 5023-0083

722896.J38.000000 LMZZZ.5 5LJ116 99-5060-2C

DD Form 250 REPLACES EDITION OF 1 AUG 87 WHICH MAY BE USED

MATERIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 | 2V 88 | 5. ACCEPTANCE POINT D

2. SHIPMENT NO. 1 | 3. DATE SHIPPED 3 Mar 95 | 4. B/L TCN | 5. DISCOUNT TERMS NET 30

PRIME CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>TICKET NR. GALLONS<br>68426 7571.1 | 7,571.1 | GL | .59 | $4,466.95 |

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

3-3-95

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

3-3-95 | Ted Smythe

DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✔) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 5055-0088

722896. J30, 000000 LMZZZ.5 SLJ116 99-5076-2003

DD FORM 250 | REPLACES EDITION OF 1 AUG 67 WHICH MAY BE USED

# [illegible]IAL INSPECTION AND [illegible]ECEIVING REPORT

DLA600-94-D-4129 | 2V 88 | Acceptance point: D

| Shipment No. | Date Shipped | B/L | Discount Terms |
|---|---|---|---|
| 2 | 7 Jan 95 | TCN | NET 30 |

**Prime Contractor** (Code)

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

**10. Administered by** (Code)

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

**Shipped from (if other than 9)** (Code) FOB:

**12. Payment will be made by** (Code)

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

**Shipped to** (Code)

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

**14. Marked for** (Code)

Bldg 2700

| Item No. | 16. Stock/Part No. Description (Indicate number of shipping containers - type of container - container number.) | 17. Quantity Ship/Rec'd * | 18. Unit | 19. Unit Price | 20. Amount |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2 | 7,568.6 | GL | .59 | $ 4,465.47 |
| | TICKET NR. GALLONS | | | | |
| | 68907 7568.6 | | | | |

**21. PROCUREMENT QUALITY ASSURANCE**

**A. ORIGIN**

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

**B. DESTINATION**

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

3-7-95

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

**22. RECEIVER'S USE**

Quantities shown in column 17 were received in apparent good condition except as noted.

3-7-95 | Jim Walker

DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

**23. CONTRACTOR USE ONLY**

97X4930.5CF0 01 26.1 S33150 000000/A/RR

MISES 5055-0088

722896. J30, 000000 LMZZZ.5 SLJ116 99-5076-2002

DD [illegible] 250 [illegible] EDITION OF 1 AUG 57 WHICH MAY BE USED

MATERIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 2V 88

5. ACCEPTANCE POINT: D

2. SHIPMENT NO.: 3

3. DATE SHIPPED: 13 Mar 95

4. B/L: TCN

5. DISCOUNT TERMS: NET 30

PRIME CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-FFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

| 15. ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>TICKET NR. GALLONS<br>69356 7569.6 | 7,569.6 | GL | .59 | $4,466.06 |

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

3-13-95 Barbara C. Moffett

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

3-13-95 [signature]

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/N/RR WISHES 5055-0088

722896.J30.000000 LMZZZ5 5LJ116 99-5076-2001

DD FORM 250 PREVIOUS EDITION OF 1 AUG 87 MAY BE USED

MATERIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 | 2V 88 | 8. ACCEPTANCE POINT D

| 2. SHIPMENT NO. | 3. DATE SHIPPED | 4. B/L | 5. DISCOUNT TERMS |
|---|---|---|---|
| 4 | 16 Mar 95 | TCN | NET 30 |

9. PRIME CONTRACTOR CODE
Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE
Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

11. SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE
Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO CODE
Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE
Bldg 2700

| 15. ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D* | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2<br>TICKET NR. GALLONS<br>69894 7533.7 | 7,533.7 | GL | .59 | $4,444.88 |

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

3-16-95

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

3-16-95 | Ted Smythe

DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 5055-0088

722896.J30.000000 LMZZZ.5 5LJ116 99-5076-200

DD FORM 250 REPLACES EDITION OF 1 AUG 67 WHICH MAY BE USED

# MATERIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 | 2V 88 | 8. ACCEPTANCE POINT D

| 2. SHIPMENT NO. | 3. DATE SHIPPED | 4. B/L | 5. DISCOUNT TERMS |
|---|---|---|---|
| 5 | 24 Mar 95 | TCN | NET 30 |

**PRIME CONTRACTOR** CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

**10. ADMINISTERED BY** CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

**SHIPPED FROM (if other than 9)** CODE FOB:

**12. PAYMENT WILL BE MADE BY** CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

**SHIPPED TO** CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

**14. MARKED FOR** CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2 | 7,561.3 | GL | .59 | $4,461.17 |
| | TICKET NR. GALLONS | | | | |
| | 70683 7561.3 | | | | |

**21. PROCUREMENT QUALITY ASSURANCE**

**A. ORIGIN**

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

**B. DESTINATION**

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

3-24-95

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

**22. RECEIVER'S USE**

Quantities shown in column 17 were received in apparent good condition except as noted.

3-24-95 [signature]

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

**23. CONTRACTOR USE ONLY**

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 5055-0088

722896.J30.000000 LMZZZ.5 5LJ116 99-5086-2000

| ITEM # | 33-462 | MONTH | MARCH | YEAR | 1995 | |
|---|---|---|---|---|---|---|
| | | | | | | |

| DAY | COMPANY | TICKET # | BLDG # | TEMP | GRAV | GROSS | NET |
|---|---|---|---|---|---|---|---|
| 3 | Premier | 68426 | 2700 | 46.0 | 34.1 | 7523.0 | 7571.1 |
| 7 | CPO | 68907 | 2700 | 48.0 | 32.4 | 7528.0 | 7568.6 |
| 13 | CPO | 68356 | 2700 | 49.0 | 33.6 | 7532.0 | 7569.0 |
| 16 | Premier | 69894 | 2700 | 50.0 | 32.3 | 7500.0 | 7533.7 |
| 24 | CPO | 70683 | 2700 | 48.0 | 33.5 | 7520.0 | 7561.3 |
| | | Total | 37803.7 | | | | |

MATERIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 | 2V 93 | ACCEPTANCE POINT D

2. DATE SHIPPED: 11 Apr 95 | 4. B/L TCN | 5. DISCOUNT TERMS: NET 30

PRIME CONTRACTOR CODE
Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE
Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE
Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE
Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE
Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2 | 7,564.8 | GL | .59 | $ 4,463.23 |
| | TICKET NR. GALLONS | | | | |
| | 71902 7564.8 | | | | |

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN
☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

B. DESTINATION
☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
4-11-95
DATE | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND TITLE

22. RECEIVER'S USE
Quantities shown in column 17 were received in apparent good condition except as noted.

4-11-95
DATE RECEIVED | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY
97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 5086-0093

722896.J30 000000 LMZZZ.5 5LJ116 99-5103-2000

DD Form 250 PREVIOUS EDITION OF 1 AUG 67 WHICH MAY BE USED

# [illegible]RIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 | 2V 93 | ACCEPTANCE POINT: D

[illegible]MENT NO.: 2 | 3. DATE SHIPPED: 18 Apr 95 | 4. B/L: TCN | 5. DISCOUNT TERMS: NET 30

PRIME CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (If other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service; Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number) | 17. QUANTITY SHIP/REC'D* | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2 | 7,490.4 | GL | .59 | $4,419.34 |
| | TICKET NR. GALLONS | | | | |
| | 72322 7490.4 | | | | |

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

4-15-95

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

4-18-95

DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

CONTRACTOR USE ONLY

97X4930.5C70 01 26.1 S33150 000000/A/RR W15HZS 5086-0093

722896.J3C.000000 LMZZZ.5 5LJ116 99-5109-2000

[illegible] 250 PREVIOUS EDITION OF 1 AUG 87 MAY BE USED

INSPECTION AND [RECE]IVING REPORT

DLA600-94-D-4129 | 2V 93 | 8. ACCEPTANCE POINT: D

3. DATE SHIPPED: 25 Apr 95 | 4. B/L: TCN | 5. DISCOUNT TERMS: NET 30

9. PRIME CONTRACTOR | CODE

Premier OIL Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY | CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-FFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) | CODE | FOB:

12. PAYMENT WILL BE MADE BY | CODE

Defense Finance/Accounting Service; Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO | CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR | CODE

Bldg 2700

| 15. ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 33-462 | Burner Oil #2 | 7,555.3 | GL | .59 | $4,457.63 |
| | TICKET NR. GALLONS | | | | |
| | 72624 7555.3 | | | | |

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

4-25-95

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

4-25-95 [signature]

DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✔) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR | W15HZS 5086-0093

722896.J30.000000LMZZZ.5 5LJ116 99-5118-2004

DD FORM 250

PREVIOUS EDITION OF 1 AUG 57 MAY BE USED

INSPECTION AND RECEIVING REPORT

LUC00-94-D-4129 | 2? 10 | Jul 95

Acceptance point: D.

| 2. Shipment No. | 3. Date Shipped | 4. B/L | 5. Discount Terms |
|---|---|---|---|
| 1 | 7 July 95 | 101 | NET 30 |

**Prime Contractor** Code

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

**10. Administered by**

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-FFP
Cameron Station Bldg 8
Alexandria, VA 22301-6160

**Shipped from (if other than 9)** Code FOB:

**12. Payment will be made by** Code

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

**Shipped to** Code

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5500

**14. Marked for** Code

Bldg 2700

| Item No. | 16. Stock/Part No. Description (Indicate number of shipping containers - type of container - container number.) | 17. Quantity Ship/Rec'd | 18. Unit | 19. Unit Price | 20. Amount |
|---|---|---|---|---|---|
| 0334162 | Burner Oil #2 | 7,403.2 | GL | .59 | $4,367.89 |
| | TICKET NR. GALLONS | | | | |
| | 76091 7403.2 | | | | |

**21. Procurement Quality Assurance**

A. ORIGIN

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

7-7-95

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

**22. Receiver's Use**

Quantities shown in column 17 were received in apparent good condition except as noted.

7-7-95

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. Contractor Use Only

97X4930.5CF0 01 26.1 S33150 000000/A/RR WISIZS 5180-0110

722896.530.000000 LMZZZ.5 5LJ116 99-5209-2001

DD Form 250 PREVIOUS EDITION OF 1 ARE MAY BE USED

INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 | 2? 10 | ACCEPTANCE POINT D. L

| SHIPMENT NO. | 3. DATE SHIPPED | 4. B/L | 5. DISCOUNT TERMS |
|---|---|---|---|
| 2 | 18 July 95 | TCN | NET 30 |

PRIME CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-FFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 0033-462 | Burner Oil #2 | 7,456.7 | GL | .59 | 3,595.68 |
| | TICKET NR. GALLONS | | | | |
| | 76509 7456.7 | | | | |

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

7-18-95

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

7-18-95

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 2G.1 S33150 000000/A/RR

W15HZS 5180-0110

722896.J30.000000 LMZZZ.5 5LJ116 99-5209-2000

DD FORM 250 PREVIOUS EDITION OF 1 AUG 67 MAY BE USED

INSPECTION AND [illegible]VING-REPORT

DLA600-94-D-4129

2V 10

ACCEPTANCE POINT: D

| NO. | 3. DATE SHIPPED | 4. B/L | 5. DISCOUNT TERMS |
|---|---|---|---|
| 3 | 27 July 95 | | NET 30 |

**PRIME CONTRACTOR** CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

**10. ADMINISTERED BY** CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22301-6160

**SHIPPED FROM (If other than 9)** CODE FOB:

**12. PAYMENT WILL BE MADE BY** CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

**SHIPPED TO** CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

**14. MARKED FOR** CODE

Bldg 2700

| ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 0-33-462 | Burner Oil #2 | 7,471 | GL | .59 | $4,407.8 |
| | TICKET NR. GALLONS | | | | |
| | 76761 7471 | | | | |

**PROCUREMENT QUALITY ASSURANCE**

**A. ORIGIN**

☐ PQA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

**B. DESTINATION**

☐ PQA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

7-27-95

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

**22. RECEIVER'S USE**

Quantities shown in column 17 were received in apparent good condition except as noted.

7-27-95 [signature]

DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.

**23. CONTRACTOR USE ONLY**

97X4930.5CF0 01 26.1 S33150 000000/A/RR

WISCS 5180-0110

722896.J30.000000 LMZZZ5 5LJ116 99-5209-2002

# Attachment 8.6

## Building 2700 Natural Gas Bills

NEW JERSEY NATURAL GAS COMPANY SUMMARY BILLING
PRIMARY ACCOUNT NUMBER 20-3298-4510-18
DATE 09/23/95 PAGE 81

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: ,GUAM,CT,,BLD 2103 FTMON
ACCOUNT NUMBER: 10-3203-0420-1-0 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 10/13/95
METER NUMBER: 544139 CONSTANT: B CURR METER READ: 4650 PREV METER READ: 4489
CCF USED: 161 X 1.052 = THERMS: 169.37 SERVICE PERIOD: 08/14-09/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $138.38

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: 145,BUILDING,,,SHERRILL FTMON
ACCOUNT NUMBER: 10-3203-0421-1-6 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 10/13/95
METER NUMBER: 565301 CONSTANT: A CURR METER READ: 613 PREV METER READ: 575
CCF USED: 38 X 1.047 = THERMS: 39.79 SERVICE PERIOD: 08/14-09/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $43.07

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: ,RIVERSIDE,AV,,BLD 498 FTMON
ACCOUNT NUMBER: 10-3203-0423-1-9 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 10/13/95
METER NUMBER: 260119 CONSTANT: B CURR METER READ: 4231 PREV METER READ: 4225
CCF USED: 6 X 1.052 = THERMS: 6.31 SERVICE PERIOD: 08/14-09/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $18.45

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: 1220,BUILDING,,,B RITTKO FTMON
ACCOUNT NUMBER: 10-3203-0425-1-1 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 10/13/95
METER NUMBER: 550502 CONSTANT: B CURR METER READ: 32 PREV METER READ: 29
CCF USED: 3 X 1.052 = THERMS: 3.16 SERVICE PERIOD: 08/14-09/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $16.14

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: 2700,BUILDING,,,B PEARL HFTMON
ACCOUNT NUMBER: 10-3203-0426-1-8 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 10/13/95
METER NUMBER: 382802 CONSTANT: B CURR METER READ: 7286 PREV METER READ: 7243
CCF USED: 43 X 1.052 = THERMS: 45.24 SERVICE PERIOD: 08/14-09/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $47.09

NEW JERSEY NATURAL GAS COMPANY SUMMARY BILLING
PRIMARY ACCOUNT NUMBER 20-3298-4510-18
DATE 10/25/95 PAGE 81

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: ,GUAM,CT,,BLD 2103 FTMON
ACCOUNT NUMBER: 10-3203-0420-1-0 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 12/14/95
METER NUMBER: 544139 CONSTANT: B CURR METER READ: 4769 PREV METER READ: 4650
CCF USED: 119 X 1.053 = THERMS: 125.31 SERVICE PERIOD: 09/13-10/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $105.97

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: 145,BUILDING,,,SHERRILL FTMON
ACCOUNT NUMBER: 10-3203-0421-1-6 BILL TYPE: PRORATE
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 12/14/95
METER NUMBER: 565301 CONSTANT: A CURR METER READ: 584 PREV METER READ: 575
CCF USED: 9 X 1.048 = THERMS: 9.43 SERVICE PERIOD: 08/14-10/13
SERVICE CHARGE: $.00 ADJUSTMENT: $43.07-
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $8.51-

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: ,RIVERSIDE,AV,,BLD 498 FTMON
ACCOUNT NUMBER: 10-3203-0423-1-9 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 12/14/95
METER NUMBER: 260119 CONSTANT: B CURR METER READ: 4238 PREV METER READ: 4231
CCF USED: 7 X 1.053 = THERMS: 7.37 SERVICE PERIOD: 09/13-10/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $19.23

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: 1220,BUILDING,,,B RITTKO FTMON
ACCOUNT NUMBER: 10-3203-0425-1-1 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 12/14/95
METER NUMBER: 550502 CONSTANT: B CURR METER READ: 38 PREV METER READ: 32
CCF USED: 6 X 1.053 = THERMS: 6.32 SERVICE PERIOD: 09/13-10/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $18.46

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: 2700,BUILDING,,,B PEARL HFTMON
ACCOUNT NUMBER: 10-3203-0426-1-8 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 12/14/95
METER NUMBER: 382802 CONSTANT: B CURR METER READ: 8125 PREV METER READ: 7286
CCF USED: 839 X 1.053 = THERMS: 883.47 SERVICE PERIOD: 09/13-10/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $663.60

NEW JERSEY NATURAL GAS COMPANY SUMMARY BILLING
PRIMARY ACCOUNT NUMBER 20-3298-4510-18
DATE 11/23/95 PAGE 81

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: ,GUAM,CT,,BLD 2103 FTMON
ACCOUNT NUMBER: 10-3203-0420-1-0 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 12/14/95
METER NUMBER: 544139 CONSTANT: B CURR METER READ: 5119 PREV METER READ: 4769
CCF USED: 350 X 1.052 = THERMS: 368.20 SERVICE PERIOD: 10/13-11/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $284.62

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: 145,BUILDING,,,SHERRILL FTMON
ACCOUNT NUMBER: 10-3203-0421-1-6 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 12/14/95
METER NUMBER: 565301 CONSTANT: A CURR METER READ: 709 PREV METER READ: 584
CCF USED: 125 X 1.047 = THERMS: 130.88 SERVICE PERIOD: 10/13-11/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $110.07

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: ,RIVERSIDE,AV,,BLD 498 FTMON
ACCOUNT NUMBER: 10-3203-0423-1-9 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 12/14/95
METER NUMBER: 260119 CONSTANT: B CURR METER READ: 4267 PREV METER READ: 4238
CCF USED: 29 X 1.052 = THERMS: 30.51 SERVICE PERIOD: 10/13-11/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $36.25

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: 1220,BUILDING,,,B RITTKO FTMON
ACCOUNT NUMBER: 10-3203-0425-1-1 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 12/14/95
METER NUMBER: 550502 CONSTANT: B CURR METER READ: 44 PREV METER READ: 38
CCF USED: 6 X 1.052 = THERMS: 6.31 SERVICE PERIOD: 10/13-11/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $18.45

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: 2700,BUILDING,,,B PEARL HFTMON
ACCOUNT NUMBER: 10-3203-0426-1-8 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 12/14/95
METER NUMBER: 382802 CONSTANT: B CURR METER READ: 8822 PREV METER READ: 8125
CCF USED: 697 X 1.052 = THERMS: 733.24 SERVICE PERIOD: 10/13-11/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $553.11

NEW JERSEY NATURAL GAS COMPANY SUMMARY BILLING
PRIMARY ACCOUNT NUMBER 20-3298-4510-18
DATE 12/28/95 PAGE 81

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: 145,BUILDING,,,SHERRILL FTMON
ACCOUNT NUMBER: 10-3203-0421-1-6 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 02/14/96
METER NUMBER: 565301 CONSTANT: A CURR METER READ: 795 PREV METER READ: 709
CCF USED: 86 X 1.047 = THERMS: 90.04 SERVICE PERIOD: 11/13-12/14
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $80.04

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: ,RIVERSIDE,AV,,BLD 498 FTMON
ACCOUNT NUMBER: 10-3203-0423-1-9 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 02/14/96
METER NUMBER: 260119 CONSTANT: B CURR METER READ: 4311 PREV METER READ: 4267
CCF USED: 44 X 1.052 = THERMS: 46.29 SERVICE PERIOD: 11/13-12/14
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $47.85

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: 1220,BUILDING,,,B RITTKO FTMON
ACCOUNT NUMBER: 10-3203-0425-1-1 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 02/14/96
METER NUMBER: 550502 CONSTANT: B CURR METER READ: 54 PREV METER READ: 44
CCF USED: 10 X 1.052 = THERMS: 10.52 SERVICE PERIOD: 11/13-12/14
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $21.54

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: 2700,BUILDING,,,B PEARL HFTMON
ACCOUNT NUMBER: 10-3203-0426-1-8 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 02/14/96
METER NUMBER: 382802 CONSTANT: B CURR METER READ: 9042 PREV METER READ: 8822
CCF USED: 220 X 1.052 = THERMS: 231.44 SERVICE PERIOD: 11/13-12/14
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $184.04

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: 1124,BUILDING,,,ALEXANDERFTMON
ACCOUNT NUMBER: 10-3203-0427-1-4 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 02/14/96
METER NUMBER: 566086 CONSTANT: B CURR METER READ: 1035 PREV METER READ: 950
CCF USED: 85 X 1.052 = THERMS: 89.42 SERVICE PERIOD: 11/13-12/14
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $79.58

**NEW JERSEY NATURAL GAS COMPANY**
*People and Resources Dedicated to Service*
1415 WYCKOFF ROAD, P.O. BOX 1378 WALL, NEW JERSEY 07715-0001

*Billing or Service Telephone Numbers-*
WITHIN NEW JERSEY 1-800-221-0051
FROM OUT OF STATE 1-908-938-7977

| ACCOUNT NUMBER | | TOTAL BALANCE |
|---|---|---|
| 20-3298-4510-18 | FORT MONMOUTH<br>DIRECTOR OF PUBLIC WORKS<br>SELFM-PW-R BLDG 173<br>ATT: MRS WHITE<br>FT MONMOUTH, NJ 07703 | $83,040.86 |
| | | DUE DATE<br>AUGUST 15, 1994 |
| | | SHOWS PAYMENTS RECEIVED BY<br>AUGUST 03, 1994 |

| | | | | |
|---|---|---|---|---|
| BALANCE FORWARD: | | $132,971.86 | LGA AMOUNT: | $11,833.30 |
| PRIOR BILLS: | | $.00 | WNA AMOUNT: | $.72 |
| | | $31,474.01- | | |
| PAYMENT - THANK YOU | 07/20 | $101,497.85- | | |
| ADJUSTMENTS: | | $4,083.74- | THERMS: | 115,001.27 |
| SERVICE CHARGES: | | $195.00 | | |
| CURRENT CHARGES: | | $86,929.60 | | |
| TOTAL AMOUNT DUE: | | $83,040.86 | | |

**IMPORTANT INFORMATION ON REVERSE SIDE**

---

*Please return this portion with your payment*
*When paying in person, please bring this entire notice with you*
*Make checks payable to NJNG*

| ACCOUNT NUMBER |
|---|
| 20-3298-4510-18 |
| DUE DATE |
| AUGUST 15, 1994 |
| AMOUNT DUE |
| $83,040.86 |

FORT MONMOUTH
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLDG 173
ATT: MRS WHITE
FT MONMOUTH, NJ 07703-0000

NJ NATURAL GAS CO.
P.O.BOX 1378
WALL, N.J. 07715-0001

2032984510 2050 00008304086 00000000000

NEW JERSEY NATURAL GAS COMPANY SUMMARY BILLING
PRIMARY ACCOUNT NUMBER 20-3298-4510-18
DATE 08/04/94 PAGE 60

SERVICE ADDRESS: 1220,BUILDING,,,B RITTKO FTMON
ACCOUNT NUMBER: 10-3203-0425-1-1 CURRENT AMOUNT: $63.44 BILL TYPE: PRORATE
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 08/16/94
METER NUMBER: 550502B CURRENT METER READ: 14 PREVIOUS METER READ:
CCF USED: 14 X 1.060 = THERMS: 14.84 SERVICE PERIOD: 03/22-07/16
SERVICE CHARGE: $.00 ADJUSTMENT: $202.60-
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $139.16-

SERVICE ADDRESS: 2700,BUILDING,,,B GUAM FTMON
ACCOUNT NUMBER: 10-3203-0426-1-8 CURRENT AMOUNT: $.00 BILL TYPE: UNBILLED
RATE: COM LLF CURRENT READ: NO READ NEXT READ DATE: 08/16/94
METER NUMBER: 382802B CURRENT METER READ: PREVIOUS METER READ: 5770
CCF USED: 0 X 1.060 = THERMS: .00 SERVICE PERIOD: 06/24-00/00
SERVICE CHARGE: $15.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $15.00

SERVICE ADDRESS: ,PINE BROOK,RD,,BLDG 45 ETNTN
ACCOUNT NUMBER: 10-3249-8155-1-6 CURRENT AMOUNT: $18,195.11 BILL TYPE: PRORATE
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 08/18/94

| METER NUMBER: | CURRENT METER READ: | PREVIOUS METER READ: |
|---|---|---|
| 500710 | 12127 | 12063 |
| 248860 | 73512 | 73026 |
| 508988 | 7114 | 7058 |
| 522758 | 70650 | 70425 |
| 522760 | 719320 | 718830 |

CCF USED: 24010 X 1.055 = THERMS: 25330.55 SERVICE PERIOD: 05/20-07/21
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $18,195.11

SERVICE ADDRESS: 116,MARCONI,RD,,CAMP EVANWALL
ACCOUNT NUMBER: 11-3347-5310-1-5 CURRENT AMOUNT: $1,059.24 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 08/22/94
METER NUMBER: 252269 CURRENT METER READ: 59955 PREVIOUS METER READ: 59821
CCF USED: 1340 X 1.055 = THERMS: 1413.70 SERVICE PERIOD: 06/23-07/25
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $1,059.24

SERVICE ADDRESS: ,OCEANPORT,AV,,AREA 1C OCNPT
ACCOUNT NUMBER: 13-3254-7500-1-6 CURRENT AMOUNT: $4.14 BILL TYPE: FINAL
RATE: COM HLF CURRENT READ: ACTUAL NEXT READ DATE: 08/15/94

| METER NUMBER: | CURRENT METER READ: | PREVIOUS METER READ: |
|---|---|---|
| 528490 | 108555 | 108555 |
| 336220 | 56179 | 56179 |

CCF USED: 0 X 1.055 = THERMS: .00 SERVICE PERIOD: 06/16-06/24
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $4.14

NEW JERSEY **NATURAL GAS** COMPANY
*People and Resources Dedicated to Service*
**1415 WYCKOFF ROAD, P.O. BOX 1378 WALL, NEW JERSEY 07715-0001**

*Billing or Service Telephone Numbers-*

| | |
|---|---|
| WITHIN NEW JERSEY | 1-800-221-0051 |
| FROM OUT OF STATE | 1-908-938-7977 |

ACCOUNT NUMBER
20-3298-4510-18

FORT MONMOUTH
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLDG 173
ATT: MRS WHITE
FT MONMOUTH, NJ 07703

TOTAL BALANCE
$59,372.90

DUE DATE
SEPTEMBER 06, 1994

SHOWS PAYMENTS RECEIVED BY
AUGUST 24, 1994

| | | | | |
|---|---|---|---|---|
| LANCE FORWARD: | | $83,040.86 | LGA AMOUNT: | $8,177.98 |
| IOR BILLS: | | $.00 | WNA AMOUNT: | $.16 |
| YMENT - THANK YOU | 08/23 | $83,040.86- | | |
| JUSTMENTS: | | $4,602.87- | THERMS: | 79,474.93 |
| RVICE CHARGES: | | $495.00 | | |
| RRENT CHARGES: | | $63,480.77 | | |
| TAL AMOUNT DUE: | | $59,372.90 | | |

**IMPORTANT INFORMATION ON REVERSE SIDE**

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*ease return this portion with your payment. When paying in person, ease bring this entire bill with you. Make checks payable to NJNG. r address changes or comments, please call numbers shown above.*

ACCOUNT NUMBER
20-3298-4510-18

DUE DATE
SEPTEMBER 06, 1994

AMOUNT DUE
$59,372.90

A0022 02/24/94

FORT MONMOUTH
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLDG 173
ATT: MRS WHITE
FT MONMOUTH, NJ 07703-0000

NJ NATURAL GAS CO.
P.O.BOX 1378
WALL, N.J. 07715-0001

20329845101 2050 00005937290 00000000000

NEW JERSEY NATURAL GAS COMPANY SUMMARY BILLING
PRIMARY ACCOUNT NUMBER 20-3298-4510-[illegible]
DATE 08/25/94 PAGE 66

SERVICE ADDRESS: 2103,BUILDING,,,GUAM RD FTMON
ACCOUNT NUMBER: 10-3203-0420-1-0 CURRENT AMOUNT: $232.83 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 10/17/94
METER NUMBER: 544139B CURRENT METER READ: 652 PREVIOUS METER READ: 371
CCF USED: 281 X 1.054 = THERMS: 296.17 SERVICE PERIOD: 07/19-08/16
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $232.83

SERVICE ADDRESS: 621,BUILDING,,,HARMON AV FTMON
ACCOUNT NUMBER: 10-3203-0422-1-2 CURRENT AMOUNT: $53.12 BILL TYPE: PRORATE
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 10/17/94
METER NUMBER: 275795B CURRENT METER READ: 267 PREVIOUS METER READ: 252
CCF USED: 15 X 1.054 = THERMS: 15.81 SERVICE PERIOD: 05/18-08/16
SERVICE CHARGE: $.00 ADJUSTMENT: $95.75-
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $42.63-

SERVICE ADDRESS: 498,BUILDING,,,RIVERSIDE FTMON
ACCOUNT NUMBER: 10-3203-0423-1-9 CURRENT AMOUNT: $19.27 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 10/17/94
METER NUMBER: 260119B CURRENT METER READ: 3961 PREVIOUS METER READ: 3954
CCF USED: 7 X 1.054 = THERMS: 7.38 SERVICE PERIOD: 07/16-08/16
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $19.27

SERVICE ADDRESS: 1220,BUILDING,,,B RITTKO FTMON
ACCOUNT NUMBER: 10-3203-0425-1-1 CURRENT AMOUNT: $16.93 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 10/17/94
METER NUMBER: 550502B CURRENT METER READ: 18 PREVIOUS METER READ: 14
CCF USED: 4 X 1.054 = THERMS: 4.22 SERVICE PERIOD: 07/16-08/16
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $16.93

SERVICE ADDRESS: 2700,BUILDING,,,B GUAM FTMON
ACCOUNT NUMBER: 10-3203-0426-1-8 CURRENT AMOUNT: $76.47 BILL TYPE: PRORATE
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 10/17/94
METER NUMBER: 382802B CURRENT METER READ: 5838 PREVIOUS METER READ: 5770
CCF USED: 68 X 1.054 = THERMS: 71.67 SERVICE PERIOD: 06/24-08/16
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $76.47

_W JERSEY **NATURAL GAS** COMPANY
_eople and Resources Dedicated to Service
**1415 WYCKOFF ROAD, P.O. BOX 1378 WALL, NEW JERSEY 07715-0001**

*Billing or Service Telephone Numbers-*

| | |
|---|---|
| WITHIN NEW JERSEY | 1-800-221-0051 |
| FROM OUT OF STATE | 1-908-938-7977 |

| ACCOUNT NUMBER | | TOTAL BALANCE |
|---|---|---|
| 20-3298-4510-18 | FORT MONMOUTH<br>DIRECTOR OF PUBLIC WORKS<br>SELFM-PW-R BLDG 173<br>ATT: MRS WHITE<br>FT MONMOUTH, NJ 07703 | $55,554.98 |
| | | DUE DATE<br>OCTOBER 05, 1994 |
| | | SHOWS PAYMENTS RECEIVED BY<br>SEPTEMBER 23, 1994 |

| | | |
|---|---|---|
| BALANCE FORWARD: | | $59,372.90 |
| PRIOR BILLS: | | $.00 |
| PAYMENT - THANK YOU | 09/13 | $59,372.90- |
| ADJUSTMENTS: | | $6,012.46- |
| SERVICE CHARGES: | | $255.00 |
| CURRENT CHARGES: | | $61,312.44 |
| TOTAL AMOUNT DUE: | | $55,554.98 |

| | |
|---|---|
| LGA AMOUNT: | $7,935.10 |
| WNA AMOUNT: | $17.82 |
| THERMS: | 77,115.40 |

**IMPORTANT INFORMATION ON REVERSE SIDE**

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*Please return this portion with your payment. When paying in person, please bring this entire bill with you. Make checks payable to NJNG. For address changes or comments, please call numbers shown above.*

| ACCOUNT NUMBER |
|---|
| 20-3298-4510-18 |
| DUE DATE |
| OCTOBER 05, 1994 |
| AMOUNT DUE |
| $55,554.98 |

FORT MONMOUTH
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLDG 173
ATT: MRS WHITE
FT MONMOUTH, NJ 07703-0000

**NJ NATURAL GAS CO.**
**P.O.BOX 1378**
**WALL, N.J. 07715-0001**

A0022 02/24/94

20329845101 2050 00005555498 00000000000

SERVICE ADDRESS: 2700,BUILDING,,,B PEARL HFTMON
ACCOUNT NUMBER: 10-3203-0426-1-8 CURRENT AMOUNT: $.00 BILL TYPE: UNBILLED
RATE: COM LLF CURRENT READ: NO READ NEXT READ DATE: 10/17/94
METER NUMBER: 382802B CURRENT METER READ: PREVIOUS METER READ: 5770
CCF USED: 0 X 1.054 = THERMS: .00 SERVICE PERIOD: 09/01-00/00
SERVICE CHARGE: $15.00 ADJUSTMENT: $76.47-
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $61.47-

SERVICE ADDRESS: ,PINE BROOK,RD,,BLDG 45 ETNTN
ACCOUNT NUMBER: 10-3249-8155-1-6 CURRENT AMOUNT: $9,211.14 BILL TYPE: PRORATE
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 10/19/94

| METER NUMBER: | CURRENT METER READ: | PREVIOUS METER READ: |
|---|---|---|
| 500710 | 12129 | 12127 |
| 248860 | 73967 | 73512 |
| 508988 | 7146 | 7114 |
| 522758 | 70774 | 70650 |
| 522760 | 719610 | 719320 |

CCF USED: 12090 X 1.049 = THERMS: 12682.41 SERVICE PERIOD: 07/21-09/19
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $9,211.14

SERVICE ADDRESS: 116,MARCONI,RD,,CAMP EVANWALL
ACCOUNT NUMBER: 11-3347-5310-1-5 CURRENT AMOUNT: $2,075.56 BILL TYPE: PRORATE
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 10/21/94
METER NUMBER: 252269 CURRENT METER READ: 60219 PREVIOUS METER READ: 59955
CCF USED: 2640 X 1.049 = THERMS: 2769.36 SERVICE PERIOD: 07/25-09/21
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $2,075.56

SERVICE ADDRESS: ,OCEANPORT,AV,,AREA 1C OCNPT
ACCOUNT NUMBER: 13-3254-7500-1-6 CURRENT AMOUNT: $.00 BILL TYPE: FINAL
RATE: COM HLF CURRENT READ: ACTUAL NEXT READ DATE: 08/15/94

| METER NUMBER: | CURRENT METER READ: | PREVIOUS METER READ: |
|---|---|---|
| 528490 | 108555 | 108555 |
| 336220 | 56179 | 56179 |

CCF USED: 0 X 1.055 = THERMS: .00 SERVICE PERIOD: 06/16-06/24
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $.00

SEY **NATURAL GAS** COMPANY
nd Resources Dedicated to Service
1415 WYCKOFF ROAD, P.O. BOX 1378 WALL, NEW JERSEY 07715-0001

*Billing or Service Telephone Numbers-*

WITHIN NEW JERSEY 1-800-221-0051
FROM OUT OF STATE 1-908-938-7977

| ACCOUNT NUMBER | | TOTAL BALANCE |
|---|---|---|
| 20-3298-4510-18 | FORT MONMOUTH<br>DIRECTOR OF PUBLIC WORKS<br>SELFM-PW-R BLDG 173<br>ATT: MRS WHITE<br>FT MONMOUTH, NJ 07703 | $97,444.28 |
| | | DUE DATE<br>NOVEMBER 04, 1994 |
| | | SHOWS PAYMENTS RECEIVED BY<br>OCTOBER 25, 1994 |

| | | | | |
|---|---|---|---|---|
| LANCE FORWARD: | | $55,554.98 | LGA AMOUNT: | $13,167.59 |
| IOR BILLS: | | $.00 | WNA AMOUNT: | $.02 |
| YMENT - THANK YOU | 10/07 | $55,554.98- | | |
| JUSTMENTS: | | $3,017.41- | THERMS: | 127,964.96 |
| RVICE CHARGES: | | $690.00 | | 122.26 Hw |
| RRENT CHARGES: | | $99,771.69 | | 128,087.22 |
| TAL AMOUNT DUE: | | $97,444.28 | | |
| | | 115.07 Hw | | |
| | | $ 97,559.35 | | |

**IMPORTANT INFORMATION ON REVERSE SIDE**

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*ise return this portion with your payment. When paying in person,*
*ise bring this entire bill with you. Make checks payable to NJNG.*
*address changes or comments, please call numbers shown above.*

| ACCOUNT NUMBER |
|---|
| 20-3298-4510-18 |
| DUE DATE |
| NOVEMBER 04, 1994 |
| AMOUNT DUE |
| $97,444.28 |

FORT MONMOUTH
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLDG 173
ATT: MRS WHITE
FT MONMOUTH, NJ 07703-0000

NJ NATURAL GAS CO.
P.O.BOX 1378
WALL, N.J. 07715-0001

A0022 02/24/94

20329845101 2050 00009744428 00000000000

NEW JERSEY NATURAL GAS COMPANY SUMMARY BILLING
PRIMARY ACCOUNT NUMBER 20-3298-4510-18
DATE 10/26/94 PAGE 79

SERVICE ADDRESS: 1220,BUILDING,,,B RITTKO FTMON
ACCOUNT NUMBER: 10-3203-0425-1-1 CURRENT AMOUNT: $33.08 BILL TYPE: PRORATE
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 12/16/94
METER NUMBER: 550502B CURRENT METER READ: 25 PREVIOUS METER READ: 18
CCF USED: 7 X 1.054 = THERMS: 7.38 SERVICE PERIOD: 08/16-10/17
SERVICE CHARGE: $.00 ADJUSTMENT: $43.43-
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $10.35-

SERVICE ADDRESS: 2700,BUILDING,,,B PEARL HFTMON
ACCOUNT NUMBER: 10-3203-0426-1-8 CURRENT AMOUNT: $109.57 BILL TYPE: PRORATE
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 12/16/94
METER NUMBER: 382802B CURRENT METER READ: 5884 PREVIOUS METER READ: 5770
CCF USED: 114 X 1.054 = THERMS: 120.16 SERVICE PERIOD: 09/01-10/17
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $109.57

SERVICE ADDRESS: ,PINE BROOK,RD.,BLDG 45 ETNTN
ACCOUNT NUMBER: 10-3249-8155-1-6 CURRENT AMOUNT: $.00 BILL TYPE: UNBILLED
RATE: COM LLF CURRENT READ: NO READ NEXT READ DATE: 11/17/94
METER NUMBER: 500710 CURRENT METER READ: PREVIOUS METER READ: 12129
248860 73967
508988 7146
522758 70774
CCF USED: 0 X 1.050 = THERMS: .00 SERVICE PERIOD: 09/19-00/00
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $.00

SERVICE ADDRESS: 116,MARCONI,RD,,CAMP EVANWALL
ACCOUNT NUMBER: 11-3347-5310-1-5 CURRENT AMOUNT: $1,388.17 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 11/17/94
METER NUMBER: 252269 CURRENT METER READ: 60396 PREVIOUS METER READ: 60219
CCF USED: 1770 X 1.050 = THERMS: 1858.50 SERVICE PERIOD: 09/21-10/19
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $1,388.17

SERVICE ADDRESS: ,OCEANPORT,AV,,AREA 1C OCNPT
ACCOUNT NUMBER: 13-3254-7500-1-6 CURRENT AMOUNT: $.00 BILL TYPE: FINAL
RATE: COM HLF CURRENT READ: ACTUAL NEXT READ DATE: 08/15/94
METER NUMBER: 528490 CURRENT METER READ: 108555 PREVIOUS METER READ: 108555
336220 56179 56179
CCF USED: 0 X 1.055 = THERMS: .00 SERVICE PERIOD: 06/16-06/24
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $.00

**NEW JERSEY NATURAL GAS COMPANY**
People and Resources Dedicated to Service
1415 WYCKOFF ROAD, P.O. BOX 1378 WALL, NEW JERSEY 07715-0001

*Billing or Service Telephone Numbers-*

WITHIN NEW JERSEY 1-800-221-0051
FROM OUT OF STATE 1-908-938-7977

| ACCOUNT NUMBER | | TOTAL BALANCE |
|---|---|---|
| 20-3298-4510-18 | FORT MONMOUTH<br>DIRECTOR OF PUBLIC WORKS<br>SELFM-PW-R BLDG 173<br>ATT: MRS WHITE<br>FT MONMOUTH, NJ 07703 | $59,372.90 |
| | | DUE DATE<br>SEPTEMBER 06, 1994 |
| | | SHOWS PAYMENTS RECEIVED BY<br>AUGUST 24, 1994 |

| | | | | |
|---|---|---|---|---|
| BALANCE FORWARD: | | $83,040.86 | LGA AMOUNT: | $8,177.98 |
| PRIOR BILLS: | | $.00 | WNA AMOUNT: | $.16 |
| PAYMENT - THANK YOU | 08/23 | $83,040.86- | | |
| ADJUSTMENTS: | | $4,602.87- | THERMS: | 79,474.93 |
| SERVICE CHARGES: | | $495.00 | | |
| CURRENT CHARGES: | | $63,480.77 | | |
| TOTAL AMOUNT DUE: | | $59,372.90 | | |

**IMPORTANT INFORMATION ON REVERSE SIDE**

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| ACCOUNT NUMBER |
|---|
| 20-3298-4510-18 |
| DUE DATE |
| SEPTEMBER 06, 1994 |
| AMOUNT DUE |
| $59,372.90 |

FORT MONMOUTH
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLDG 173
ATT: MRS WHITE
FT MONMOUTH, NJ 07703-0000

NJ NATURAL GAS CO.
P.O.BOX 1378
WALL, N.J. 07715-0001

A0022 02/24/94

2032984510l 2050 00005937290 00000000000

SERVICE ADDRESS: 2103,BUILDING,,,GUAM RD FTMON
ACCOUNT NUMBER: 10-3203-0420-1-0 CURRENT AMOUNT: $232.83 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 10/17/94
METER NUMBER: 544139B CURRENT METER READ: 652 PREVIOUS METER READ: 371
CCF USED: 281 X 1.054 = THERMS: 296.17 SERVICE PERIOD: 07/19-08/16
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $232.83

SERVICE ADDRESS: 621,BUILDING,,,HARMON AV FTMON
ACCOUNT NUMBER: 10-3203-0422-1-2 CURRENT AMOUNT: $53.12 BILL TYPE: PRORATE
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 10/17/94
METER NUMBER: 275795B CURRENT METER READ: 267 PREVIOUS METER READ: 252
CCF USED: 15 X 1.054 = THERMS: 15.81 SERVICE PERIOD: 05/18-08/16
SERVICE CHARGE: $.00 ADJUSTMENT: $95.75-
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $42.63-

SERVICE ADDRESS: 498,BUILDING,,,RIVERSIDE FTMON
ACCOUNT NUMBER: 10-3203-0423-1-9 CURRENT AMOUNT: $19.27 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 10/17/94
METER NUMBER: 260119B CURRENT METER READ: 3961 PREVIOUS METER READ: 3954
CCF USED: 7 X 1.054 = THERMS: 7.38 SERVICE PERIOD: 07/16-08/16
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $19.27

SERVICE ADDRESS: 1220,BUILDING,,,B RITTKO FTMON
ACCOUNT NUMBER: 10-3203-0425-1-1 CURRENT AMOUNT: $16.93 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 10/17/94
METER NUMBER: 550502B CURRENT METER READ: 18 PREVIOUS METER READ: 14
CCF USED: 4 X 1.054 = THERMS: 4.22 SERVICE PERIOD: 07/16-08/16
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $16.93

SERVICE ADDRESS: 2700,BUILDING,,,B GUAM FTMON
ACCOUNT NUMBER: 10-3203-0426-1-8 CURRENT AMOUNT: $76.47 BILL TYPE: PRORATE
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 10/17/94
METER NUMBER: 382802B CURRENT METER READ: 5838 PREVIOUS METER READ: 5770
CCF USED: 68 X 1.054 = THERMS: 71.67 SERVICE PERIOD: 06/24-08/16
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $76.47

## GENERAL INFORMATION

### OFFICE LOCATIONS

HOURS—8am to 4.30pm

| | |
|---|---|
| ROCKAWAY | 201 Pounchill Drive |
| ASBURY PARK | 601 Bangs Ave |
| WALL | 1415 Wyckoff Rd |
| LAKEWOOD | 775 Vassar Ave |

### TELEPHONE NUMBERS

1-800 NUMBERS ARE TOLL FREE

Subject to Service Observation

HOURS—See Below

| | |
|---|---|
| Customer Inquiry | |
| WITHIN NJ | 1-800-221-0051 |
| OUTSIDE NJ | 1-908-938-7977 |
| FOR THE DEAF | 1-800-223-0024 |
| GAS LEAKS | 1-800-392-6865 |

### TELEPHONE HOURS

Customers may call our Customer Inquiry Center Monday through Friday 7:30am to 6pm.

**FOR EMERGENCY SERVICE OUR PHONES ARE ANSWERED 24 HOURS A DAY.**

### SPECIAL SERVICES

NJNG offers special notification services to residential customers with overdue gas bills.

#### TELEPHONE NOTIFICATION

NJNG will telephone any customer over 65 years of age, at their request, before acting on an overdue bill.

#### THIRD PARTY NOTIFICATION

Customers may designate an individual or agency (the third party) to receive a duplicate copy of their delinquent notice. The "third party" would act only to remind the customers of the overdue balance to avoid an interruption of service and is under no obligation to pay the bill.

### ENERGY CONSERVATION

NJNG offers energy conservation programs to help customers reduce their gas usage. For more information, contact our Conservation Center at our Customer Inquiry Numbers noted above.

### CHARGES YOU SHOULD NOTE

To help cover the cost of collecting delinquent bills NJNG charges for:

#### RETURNED CHECK—$10

For each check returned by the bank due to lack of funds, there will be a charge of $10 added to the customer account.

#### FIELD COLLECTION—$15

If a field collection visit is required on an overdue bill, there may be a charge of $15 added to the customer account.

#### LATE PAYMENT

Commercial and Industrial customers who allow their bill to go unpaid at the time the next monthly bill is prepared are charged an extra 1.5 percent on the overdue balance.

## EXPLANATIONS

The following descriptions refer to the other side of this bill.

### BILL CALCULATION

This shows the rates and method used to calculate the gas charge portion of your bill.

### BUDGET BILLING SUMMARY

This information is shown each month on the bills of customers using the Equal Payment Plan. Information includes the starting month, starting balance, all charges and payments, and the running balance which includes the current bill's gas charges.

### BTU (British Thermal Unit) CONTENT

This is the heat "value" of the gas you used. The volume of gas used (CCF) is multiplied by the heat value and pressure value, where applicable, to determine the number of billing units (therms) used.

### BUDGET OPTION

Customers can automatically join the Equal Payment Plan by paying the "Budget Option" amount shown.

### CALCULATED BILL

When meters are not read, NJNG calculates gas use based on the history of your account. At the next actual meter reading, the account automatically adjusts for any difference between the calculated and actual use. *Meters are read bi-monthly to reduce operating costs borne by our customers.*

### CUSTOMER CHARGE

This cost covers a portion of the company's cost to serve customers for such items as mailing, taxes, system maintenance and record keeping. The fixed amount is not related to the quantity of gas used.

### DC (Demand Charge)

The demand charge for cogeneration customers.

### LGA (Levelized Gas Adjustment)

The LGA reflects costs NJNG pays for natural gas and passes through to customers. NJNG makes no profit on this charge.

### RA (Remediation Adjustment)

The RA is an approved rate adjustment relating to environmental corrections of coal-gas manufacturing sites.

### THERMS

A therm is a technical name for billing units. Each therm is equivalent to 100,000 BTU.

### USE COMPARISONS

This information is provided for a comparison of current billing data with the same period last year.

BILLING DAYS - number of days in the billing period
CCF BILLED - volume of gas used.
CCF PER DAY - volume used per day.
DEGREE DAYS - the method used to measure cold weather; the colder the weather, the higher number of degree days.

### WNA (Weather Normalization Adjustment)

The WNA is an approved rate adjustment based upon variances from normal weather.

FY 96 SUMMARY

# FT. MONMOUTH Facilities Energy Consumption

| Utility | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Electric (MWH) | 6,991 | 5,402 | 6,132 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18,525 |
| Electric (MBTU | 23,860 | 18,437 | 20,928 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 63,225 |
| GAS (THERMS | 104,933 | 322,181 | 505,511 | 885,039 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,817,664 |
| GAS (MBTU's) | 10,493 | 32,218 | 50,551 | 88,504 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 181,766 |
| #2 FUEL (GALS | 29,980 | 56,667 | 60,707 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 147,354 |
| #2 FUEL(MBTU | 4,158 | 7,859 | 8,419 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20,436 |
| PROPANE (GA | 1,092 | 2,338 | 655 | 655 | 655 | 655 | 655 | 655 | 655 | 655 | 655 | 655 | 655 |
| PROPANE (MB | 104 | 223 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 |

| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL | | | | | | | | | | | | | YEARLY MBTU'S |
| Monthly MBTU's | 38,615 | 58,737 | 79,981 | 88,566 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 265,490 |
| Cum MBTU's | 38,615 | 97,352 | 177,313 | 265,880 | 265,942 | 266,005 | 266,067 | 266,130 | 266 192 | 266,255 | 266,317 | 266,380 | 531,870 |
| ELECTRIC | | | | | | | | | | | | | ELECTRIC |
| MONTHLY KWH | 6,991,000 | 5,402,000 | 6,132,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18,525,000 |
| COST $/KWH | 0.0837 | 0.0977 | 0.0852 | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | $0.1165 |
| | | | | | | | | | | | | | NAT GAS |
| NAT GAS | 104,933 | 322,181 | 505,511 | 885,039 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,817,664 |
| COST $/ BTU/t | 0.7831 | 0.7364 | 0.7255 | 0.7226 | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | $0.684 |

| NO 2 FUEL OIL | FY 96 | FY 95 | FY 94 |
|---|---|---|---|
| | 0.78 | 0.59 | 0.71 |

| Conversion Factors | To | Multiply by |
|---|---|---|
| ELEC MWH | MBTU's | 3.412949 |
| NAT GAS THERMS | MBTU's | 0.100000 |
| #2 GALS | MBTU's | 0.138686 |
| #6 GALS | MBTU's | 0.149685 |
| PROPANE GALS | MBTU'S | 0.09547 |

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL # of pages ▶ 2

| To Joh | From C. Hoaig |
|---|---|
| Dept./Agency | Phone # 908-532-8347 |
| Fax # | Fax # |

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION



FY93UTIL.XLS

Fort Monmouth, NJ
*UTILITY COSTS*

# FORT MONMOUTH
## UTILITY COSTS

| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ELECTRIC** | | | | | | | | | | | | | |
| FY96$ | 584,838 | 527,651 | 522,652 | 522,346 | | | | | | | | | $2,157,487 |
| FY95$ | 531,684 | 543,072 | 558,663 | 534,311 | 531,558 | 513,954 | 638,024 | 536,749 | 685,427 | 827,645 | 771,607 | 680,872 | $7,253,566 |
| FY 94$ | 553,811 | 573,675 | 531,906 | 512,086 | 592,547 | 494,101 | 565,108 | 521,633 | 707,003 | 827,645 | 731,168 | 646,309 | $7,256,992 |
| FY 93$ | 505,692 | 523,189 | 500,629 | 486,498 | 533,310 | 530,326 | 523,399 | 572,616 | 680,092 | 805,532 | 760,887 | 523,189 | 6,945,339 |
| FY 92$ | 573,379 | 470,732 | 518,273 | 481,839 | 430,365 | 487,929 | 558,579 | 539,173 | 608,715 | 716,315 | 746,425 | 671,064 | 6,800,786 |
| FY 91$ | 488,979 | 460,860 | 457,378 | 451,467 | 461,060 | 458,527 | 514,006 | 560,731 | 644,940 | 752,638 | 697,736 | 849,632 | 6,597,954 |
| FY96 How Comm | | | | | | | | | | | | | |
| FY95 How Comm | 228 | 228 | 228 | 226 | 226 | 226 | 64630 | 82391 | 131394 | 67745 | 67638 | 46780 | 481,940 |
| FY 94 How Comm | 24,893 | 23,584 | 26,680 | 28,511 | 27,884 | 27,289 | | | | | | | 158,841 |
| FY 93 How Comm | 22,527 | 19,580 | 23,227 | 23,631 | 23,642 | 25,297 | 22,408 | 21,954 | 31,904 | 44,850 | 22,527 | 19,580 | 301,127 |
| FY 92 How Comm | 25,724 | 23,104 | 24,049 | 26,748 | 24,749 | 23,026 | 23,249 | 18,869 | 26,478 | 34,843 | 31,776 | 32,726 | 315,342 |
| FY 91 How Comm | 23,964 | 21,031 | 23,157 | 25,741 | 24,176 | 21,550 | 22,631 | 25,271 | 35,907 | 38,532 | 44,831 | 39,082 | 345,871 |
| COB FY 96 | | | | | | | | | | | | | |
| COB FY 95 | | | 132,900 | | | 164,100 | | | 150,700 | | | 167,374 | 615,074 |
| COB FY 94 | | | 138,200 | | | 174,000 | | | 175,400 | | | 183,700 | 649,300 |
| COB FY 93 | | | 129,000 | | | 135,400 | | | 142,600 | | | 134,000 | 541,000 |
| COB FY 92 | | | 127,900 | | | 134,600 | | | 135,900 | | | 127,700 | 526,100 |
| COB FY 91 | | | 138,000 | | | 134,700 | | | 120,800 | | | 135,700 | 529,200 |
| **NATURALGAS** | | | | | | | | | | | | | |
| FY96$ | 82,169 | 237,261 | 366,723 | 639,535 | | | | | | | | | $1,243,519 |
| FY95$ | 145,801 | 328,897 | 442,178 | 398,308 | 388,098 | 260,898 | 175,520 | 114,575 | 74,820 | 66,565 | 73,986 | 82,170 | $2,549,794 |
| FY 94$ | 67,601 | 128,917 | 195,093 | 462,257 | 225,914 | 249,864 | 66,929 | 101,498 | 83,041 | 59,373 | 55,555 | 84,638 | $1,780,680 |
| FY 93$ | 42,438 | 32,810 | 200,919 | 180,818 | 210,691 | 344,027 | 164,337 | 78,895 | 93,513 | 80,442 | 40,330 | 89,638 | 1,558,658 |
| FY 92$ | 49,926 | | 147,974 | 148,738 | 165,186 | 142,890 | 121,951 | 66,128 | 43,843 | 17,539 | 25,413 | 31,250 | 960,638 |
| FY91$ | 38,084 | 92,023 | 106,472 | 97,896 | 111,217 | 111,714 | 70,913 | 37,394 | 23,709 | 23,608 | 22,074 | 25,429 | 780,733 |
| **WATER** | | | | | | | | | | | | | |
| FY96$ | 77,108 | 70,970 | 89,932 | 59,914 | | | | | | | | | $297,924 |
| FY95$ | 62,871 | 67,090 | 67,064 | 73,898 | 53,838 | 56,853 | 51,369 | 53,340 | 141,102 | 83,024 | 91,260 | 112,708 | $914,237 |
| FY 94$ | 63,650 | 81,323 | 56,762 | 58,101 | 58,387 | 71,155 | 71,907 | 94,115 | 94,516 | 79,281 | 72,477 | 75,226 | 856,880 |
| FY 93$ | 82,228 | 63,228 | 63,155 | 54,240 | 65,626 | 62,120 | 68,610 | 79,905 | 103,811 | 103,389 | 95,507 | 68,128 | 897,847 |
| FY92$ | 67,623 | 70,979 | 59,296 | 45,125 | 66,069 | 61,898 | 64,618 | 71,023 | 90,366 | 90,304 | 81,117 | 74,399 | 842,817 |
| FY91$ | 69,116 | 59,630 | 56,088 | 56,794 | 58,287 | 62,745 | 74,344 | 85,430 | 93,738 | 91,573 | 92,846 | 67,272 | 867,862 |
| **SEWER** | | EST | EST | EST | | | | | | | | | |
| FY96$ | 33,323 | 32,050 | 32,050 | 32,050 | | | | | | | | | $129,473 |
| FY95$ | 46,478 | 49,371 | 49,286 | 34,571 | 33,229 | 34,993 | 30,633 | 32,290 | 32,270 | 32,690 | 32,790 | 33,120 | $441,921 |
| FY 94$ | 51,861 | 49,269 | 48,576 | 62,151 | 55,229 | 60,609 | 56,268 | 51,758 | 49,456 | 48,702 | 54,990 | 51,439 | $639,308 |
| FY 93$ | 43,706 | 46,336 | 50,004 | 51,808 | 51,282 | 75,434 | 80,677 | 56,098 | 48,376 | 46,903 | 47,078 | 46,830 | 644,632 |
| FY92$ | 53,742 | 50,044 | 53,919 | 43,724 | 44,298 | 49,479 | 44,975 | 47,466 | 43,528 | 43,138 | 39,418 | 41,709 | 555,440 |
| FY91$ | 51,079 | 39,032 | 68,955 | 72,421 | 63,143 | 72,375 | 69,436 | 69,209 | 55,147 | 52,453 | 59,091 | 53,388 | 725,729 |
| FY96-FY95 | -1.19% | -12.19% | -9.47% | 20.67% | -100.00% | -100.00% | -100.00% | -100.00% | -100.00% | -100.00% | -100.00% | -100.00% | -65.69% |
| MONTHLY DIFF | -9,396 | -120,498 | -105,854 | 214,759 | -1,006,523 | -866,698 | -795,746 | -736,954 | -933,619 | -1,009,924 | -969,623 | -908,870 | -7,331,115 |
| TOTAL | | 12.44% | | | | | | | | | | | |
| MONTHLY SEWER, WATER, N | | 73,608 | | | | | | | | | | | |
| FY96 | 777,438 | 867,932 | 1,011,357 | 1,253,845 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $3,828,403 |
| FY 95 | 786,834 | 988,430 | 1,117,211 | 1,039,086 | 1,006,523 | 866,698 | 795,746 | 736,954 | 933,619 | 1,009,924 | 969,623 | 908,870 | $11,159,518 |
| FY 94 | 738,923 | 813,184 | 832,337 | 1,094,595 | 932,077 | 875,729 | 758,212 | 769,004 | 934,016 | 1,014,981 | 914,190 | 857,612 | 10,533,860 |
| FY 93 | 874,064 | 665,383 | 814,707 | 773,364 | 850,909 | 1,011,907 | 836,923 | 787,514 | 925,792 | 1,036,268 | 943,782 | 725,885 | 10,046,476 |
| FY92 | 744,670 | 591,755 | 777,462 | 719,426 | 705,917 | 742,196 | 790,122 | 723,790 | 786,253 | 867,296 | 892,373 | 818,422 | 9,159,681 |
| FY91 | 647,258 | 651,545 | 688,893 | 678,578 | 693,707 | 705,361 | 728,699 | 752,764 | 817,534 | 920,472 | 871,746 | 795,721 | 8,952,278 |

**Primary Acct.#: 20-3298-4510-18**
**Service Address: 2700, Bldg,,,B Pearl HFTMON**
**Bldg. Service Acct.#: 10-3203-0426-1-8**
**Meter #: 382802B**
DON'T SHOW BELOW!
**August-November 1995**

| Month | MCF | Therm Factor | Therms | Customer Charge | <= 3,000 Therms $ / Therm | > 3,000 Therms $ / Therm | Levelized Gas Adj. | Misc. Adj. | Rate | TOTAL BILL |
|---|---|---|---|---|---|---|---|---|---|---|
| *1994* | | | | | | | | | | |
| July* | | 1.060 | 0.00 | $15.00 | N/A | | $0.1029 | | | $15.00 |
| August* | 6.8 | 1.054 | 71.67 | $24.86 | $0.6210 | | $0.1029 | | | $76.74 |
| September* | 0 | 1.054 | 0.00 | $15.00 | N/A | | $0.1029 | ($76.47) | | ($61.47) |
| October* | 11.4 | 1.054 | 120.16 | $13.81 | $0.6210 | | $0.1029 | | | $100.79 |
| *1995* | | | | | | | | | | |
| *Esti. Use w/ Boiler typ mont* | 5440 | 1.053 | 57,283.20 | $13.81 | $0.6326 | $0.6034 | $0.1029 | | LLF | $40,560.53 |
| August* | 4.6 | 1.052 | 48.39 | $13.81 | $0.6326 | $0.6034 | $0.1029 | ($2.31) | LLF | $47.09 |
| September | 83.9 | 1.053 | 883.47 | $13.81 | $0.6326 | $0.6034 | $0.1029 | | LLF | $663.60 |
| October* | 69.7 | 1.052 | 733.24 | $13.81 | $0.6326 | $0.6034 | $0.1029 | | LLF | $553.11 |
| November | 22 | 1.052 | 231.44 | $13.81 | $0.6326 | $0.6034 | $0.1029 | | LLF | $184.04 |
| TOTAL: | 5,638.4 | | 59,372 | $137.72 | | | | | | $42,139.44 |

).00232

**"*" Denotes that billing for this month was either not read or not calculated.**
**"?" Denotes that no billing information available.**

## Attachment 8.7

## Natural Gas Rate Schedule

NATURAL
NEW JERSEY GAS  FT. MONMOUTH MWR CENTER

# NEW RATE SCHEDULE

*(Effective 1/1/95)*

4130.05

## RESIDENTIAL

Customer Charge: $6.04

Commodity Charge: $.6362 per therm

Levelized Gas Adjustment (Effective 12/1/93): $.1029 per therm for all therms

## AIR CONDITIONING AND POOL HEATING

Upon separate application, customers who have installed, and are using gas air conditioning or gas pool heating equipment, will be billed on the above monthly rates except that the commodity charge will be $.3115 per therm for all monthly consumption over 35 therms of gas for services rendered between May 1 and September 30 of each year. This commodity charge will be adjusted in a similar manner as the CAC service classification.

## GENERAL SERVICE - HIGH LOAD FACTOR - 204, 206, 207, 208, 214, 216, 218, 224, 226, 227, 228, 229, 230, 253, 257, 281, 299

Customer Charge: $13.81 per month

Commodity Charge: $.6026 per therm for first 3,000 therms

$.5734 per therm for all over 3,000 therms

Levelized Gas Adjustment (Effective 12/1/93): $.1029 per therm for all therms

# NEW RATE SCHEDULE (con't)

| | |
|---|---|
| GENERAL SERVICE - LOW LOAD FACTOR - | 004, 006, 007, 008, 014, 016<br>018, 024, 026, 027, 028, 029<br>030, 053, 057, 081, 099 |
| Customer Charge: | $13.81 per month |
| Commodity Charge: | $.6326 per therm for first 3,000 therms |
| | $.6034 per therm for all over 3,000 therms |
| Levelized Gas Adjustment<br>(Effective 12/1/93) | $.1029 per therm for all therms |

## SERVICE CLASSIFICATION

Customers that have an **initial** load factor **greater than 58 percent** will be assigned to the **GS-HLF** classification. Customers that have an **initial** load factor equal to or **less than 58 percent** will be assigned to the **GS-LLF** classification.

## CALCULATION OF LOAD FACTOR

Each customer's load factor will be equal to the result of dividing:

a) the total annual usage by
b) the highest single month's usage times 12

$$\text{Load Factor} = \frac{\text{Total Annual Use}}{\text{Highest Month's Use X 12}}$$

## REVIEW OF LOAD FACTORS

The Company shall review, once a year, each load factor based on the most recent 12 months of billing information.

The Company shall review a load factor any time the Customer makes a written request to the Company.

# NEW RATE SCHEDULE (con't)

<u>CHANGE IN SERVICE CLASSIFICATION</u>

After the initial assignment, if a customer's load factor increases above 61 percent, classification will be switched to the GS-HLF.

The Company will change a customer's service classificataion based upon a load factor review. No service classification changes will be made without 12 months of valid billing data.

A new customer will be assigned an initial load factor by the Company based on an evaluation of the customer's equipment and anticipated gas consumption patterns.

<u>INTERRUPTIBLES</u>

Bill Code = 2

05-3200

05-3204

- Customer Service does not calculate these the same as Residential or General Service.
- These are negotiated items. Carol Procassini, Rates Department, gets them and calls on billing concerning Interruptibles go to Barbara Roma.
- These accounts are read every month.

# CALCULATION

## REGULAR AND PRO-RATED PERIODS

1. A regular bill covers a period of 26 to 34 days.
2. A pro-rated bill covers a period less than 26 days or more than 34 days. It assures that the rate is appropriately applied to the days in the period that are greater or less than the days in the regular bill period.

## LGA (Levelized Gas Adjustment)

1. The LGA is an amount added to the bill. To calculate the LGA amount, multiply the monthly LGA cost factor by the number of therms being billed.
2. Refer to the Standard Response se0ction for a more detailed definition.

## REGULAR BILL CALCULATIONS - EXAMPLE

**Problem:**

Rate 003 customer uses 121 CCF during a 30-day period. January 10, 1995 through February 10, 1995. LGA factor is .1029.

**Step 1**

121 ccf x 1.046 Therm Factor = 126.57 therms to be billed

Rate 003 = residential service rate (RS)

**Step 2**

| | |
|---|---|
| 126.57 Therms to be Billed | |
| Customer Charge | $ 6.04 |
| 126.57 Therm @ .6362 | $80.52 |
| Bill Amount | $86.56 |

**Step 3**

126.57 therms x .1029 = $13.02 LGA

**Step 4**

126.57 therms x .0073 WNA = ($.92)

**Step 5**

| | |
|---|---|
| Bill Amount | $86.56 |
| LGA | $13.02 |
| WNA | $ (.92) |
| Total Bill | $98.66 |

Effective January 1, 1995

# CALCULATION (con't)

<u>GENERAL SERVICE RATES (GS) - RATE CODES</u> - 004-014-029
006-016-007
008-018-053-057
083-086-089-099

**Problem:**

Rate 008 customer uses 3622 CCF during a 27-day period. January 10, 1995 through February 6, 1995. LGA factor is .1029.

<u>Step 1</u>

3622 CCF x 1.044 therm factor = 3781.37 therms to be billed.

Rate 008 = General Service Rate (GS)

<u>Step 2</u>

| | |
|---|---|
| 3781.37 therms to be billed | |
| Customer Charge | $ 13.81 |
| First 3000 therms at .6326 each | $1897.80 |
| 781.37 therms at .6034 each | $ 471.48 |
| Bill Amount | $2,383.09 |

<u>Step 3</u>

3781.37 therms x .1029 LGA factor = $389.10 LGA

<u>Step 4</u>

3781.37 therms x .0073 WNA = ($27.60)

<u>Step 5</u>

| | |
|---|---|
| Bill Amount | $2383.09 |
| LGA | $ 389.10 |
| WNA | $ (27.60) |
| Total Bill | $2744.59 |

# Attachment 8.8

# Building 2700 Boiler Logs

# UTILITIES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420-49; the proponent agency is the Corps of Engineers.

INSTALLATION: Ft. Monmouth | PLANT: A.J. Myer Ctr | BLDG: 2

| DATE | STEAM PRESSURE LB (1) | STEAM PRODUCED BOILER 1 1,000 LB (2) | BOILER 2 1,000 LB (3) | BOILER 3 1,000 LB (4) | TOTAL 1,000 LB (5) | FEED WATER TO BOILER 1,000 LB (6) | FUEL USED LB. M.C.F. GAL. (7) | EVAP. LB. PER UNIT (8) | OUTSIDE TEMP. AV. °F (9) | FEEDWATER HEATER PRESS. LB. (10) | TEMP. °F (11) | MAKEUP GAL (12) | %CO2 BOILER 1 (13) | BOILER 2 (14) | BOILER 3 (15) | FLUE GAS TEMPERATURE BOILER 1 °F (16) | BOILER 2 °F (17) | BOILER 3 °F (18) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 91 | | | 134,000 | 134,000 | | 1040 | 11.0 | 62 | 2.5 | 212 | 3200 | | | | | | 355 |
| 2 | 90.75 | | | 134,000 | 134,000 | | 1040 | 11.0 | 56 | 2.5 | 212 | 3100 | | | | | | 354 |
| 91.81 3 | 91.5 | 652,000 | | 133,000 | 133,000 | 5030 | 1010 | 11.0 | 61 | 2.5 | 212 | 3100 | 15700 | | | | | 351 |
| 4 | 91.83 | | | 124,000 | 124,000 | | 950 | 11.0 | 66 | 2.5 | 212 | 3100 | | | | | | 350 |
| 5 | 92 | | | 131,000 | 131,000 | | 990 | 11.1 | 63 | 2.5 | 212 | 3200 | | | | | | 352 |
| 6 | 92.33 | | | 127,000 | 127,000 | | 970 | 11.0 | 63 | 2.5 | 212 | 2800 | | | | | | 353 |
| 92.49 7 | 92.66 | 447,000 | | 128,000 | 128,000 | 3400 | 980 | 11.0 | 68 | 2.5 | 212 | 3300 | | | | | | 35[illegible] |
| 8 | 92.58 | | | 122,000 | 122,000 | | 920 | 11.1 | 71 | 2.5 | 212 | 2700 | 10500 | | | | | 34[illegible] |
| 9 | 92.42 | | | 70,000 | 70,000 | | 530 | 11.1 | 70.5 | 2.5 | 212 | 1200 | | | | | | 34[illegible] |
| 10 | PLANT DOWN TO DISCONNECT #4 BOILER | | | | | | | | | | | | | | | | | |
| 11 | PLANT DOWN TO DISCONNECT #4 BOILER | | | | | | | | | | | | | | | | | |
| 12 | 86 | | | 139,000 | 139,000 | | 1050 | 11.1 | 67 | 2.5 | 212 | 4400 | | | | | | 352 |
| 13 | 92.25 | 123,000 | | 123,000 | 123,000 | | 940 | 11.0 | 67 | 2.5 | 212 | 2700 | | | | | | 353 |
| 14 | 88.33 | 132,000 | | | 132,000 | | 1012 | 11.0 | 62 | 2.5 | 212 | 3000 | | | | | | 358 |
| 15 | 88.83 | 124,000 | | | 124,000 | | 950 | 11.0 | 63 | 2.5 | 212 | 2400 | | | | | | 36[illegible] |
| 16 | 88 | 92,000 | | | 92,000 | | 700 | 11.0 | 62 | 2.5 | 212 | 2300 | | | | | | 375 |
| 17 | PLANT DOWN TO DISCONNECT #4 BOILER | | | | | | | | | | | | | | | | | |
| 18 | 55.2 | 32,000 | | | 32,000 | | 320 | 11.0 | 67 | 2.5 | 212 | 1000 | | | | | | 36[illegible] |
| 19 | 77 | 135,000 | 784,000 | | 135,000 | 7020 | 1020 | 11.1 | 55 | 2.5 | 212 | 2600 | 22400 | | | | | 383 |
| 20 | 79 | 132,000 | | | 132,000 | | 1030 | 11.1 | 61 | 2.5 | 212 | 4000 | | | | | | 383 |
| 21 | 54 | 125,000 | | | 128,000 | | 980 | 11.0 | 63 | 2.5 | 212 | 3200 | | | | | | 31[illegible] |
| 22 | 84.83 | 119,000 | | | 119,000 | | 910 | 11.0 | 62 | 2.5 | 212 | 3200 | | | | | | 321 |
| 23 | 91.14 | 123,000 | | | 123,000 | | 920 | 11.1 | 66.5 | 2.5 | 212 | 3000 | | | | | | 372 |
| 24 | 92 | 105,000 | | | 108,000 | | 820 | 11.1 | 60.6 | 2.5 | 212 | 3400 | | | | | | 319 |
| 25 | 71 | 112,000 | | | 112,000 | | 880 | 11.0 | 71 | 2.5 | 212 | 2700 | | | | | | 353 |
| 26 | 91.32 | 127,000 | | | 127,000 | | 970 | 11.0 | 58 | 2.5 | 212 | 2900 | | | | | | 360 |
| 91.55 27 | 89.66 | 127,000 | 1,129,000 | | 127,000 | 8590 | 960 | 11.1 | 58.66 | 2.5 | 212 | 3600 | 27800 | | | | | 361 |
| 28 | 91.66 | 123,000 | | | 123,000 | | 940 | 11.0 | 65.66 | 2.5 | 212 | 2200 | | | | | | 350 |
| 29 | 91.66 | 147,000 | | | 147,000 | | 1110 | 11.1 | 64.3 | 2.5 | 212 | 3400 | | | | | | 360 |
| 30 | 92.33 | 128,000 | | | 128,000 | | 980 | 11.0 | 63 | 2.5 | 212 | 3500 | | | | | | 358 |
| 31 | 92.66 | 131,000 | | | 131,000 | | 1000 | 11.1 | 61 | 2.5 | 212 | 3100 | | | | | | 353 |
| TOTAL | | | 3,012,000 | | | 24,040 | | | | | | 76,400 | | | | | | |
| MAXIMUM | | | | | | | | | | | | | | | | | | |
| MINIMUM | | | | | | | | | | | | | | | | | | |
| AVERAGE | 90.45 | | | | | | | | | | | | | | | | | |

EVAPORATION LB. STEAM PER LB. STD. FUEL

FUEL USED DURING MONTH (STANDARD TONS)

REMARKS: July - 1993

SEE REVERSE SIDE FOR INSTRUCTIONS

PREPARED BY | DATE | APPROVED BY | DATE

DA FORM 1 NOV 72 3967 REPLACES DA FORM 5-50, 1 JUN 58, WHICH WILL BE USED.

**FACIL .S ENGINEERING OPERATING LOG** *(Boiler Plant)*

For use of this form, see AR 420-49, the proponent agency is the Corps of Engineers.

INST TION: FT. Monmouth

PLANT: R.J MYER CTR.

BLDG NO: 2700

| DATE | STEAM PRESSURE LB (1) | STEAM PRODUCED BOILER 1 1,000 LB (2) | BOILER 2 1,000 LB (3) | BOILER 3 1,000 LB (4) | TOTAL 1,000 LB. (5) | FEED-WATER TO BOILER 1,000 LB. (6) | FUEL USED LB. M.C.F. GAL. (7) | EVAP. LB. PER UNIT (8) | OUTSIDE TEMP. AV. °F. (9) | FEEDWATER HEATER PRESS LB. (10) | FEEDWATER HEATER TEMP. °F. (11) | FEEDWATER HEATER MAKEUP GAL. (12) | %CO2 BOILER 1 (13) | %CO2 BOILER 2 (14) | %CO2 BOILER 3 (15) | FLUE GAS TEMPERATURE BOILER 1 °F (16) | FLUE GAS TEMPERATURE BOILER 2 °F (17) | FLUE GAS TEMPERATURE BOILER 3 °F (18) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 92.— | 124,000 | | | 124,000 | | 950 | 11.0 | 61 | 2.5 | 212 | 2900 | | | | 349 | | |
| 2 | 93.— | 123,000 | | | 123,000 | | 940 | 11.0 | 62 | 2.5 | 212 | 3000 | | | | 345 | | |
| 3 | 92.33 | 122,000 | 624,000 | | 122,000 | 4720 | 920 | 11.0 | 62 | 2.5 | 212 | 3700 | 15,800 | | | 350 | | |
| 4 | 94.66 | 123,000 | | | 123,000 | | 940 | 11.0 | 63 | 2.5 | 212 | 3500 | | | | 345 | | |
| 5 | 90.66 | 122,000 | | | 122,000 | | 920 | 11.0 | 59 | 2.5 | 212 | 2700 | | | | 351 | | |
| 6 | 91.41 | 132,000 | | | 132,000 | | 1010 | 11.0 | 52 | 2.5 | 212 | 3600 | | | | 348 | | |
| 7 | 91.33 | 136,000 | | | 136,000 | | 1030 | 11.1 | 52 | 2.5 | 212 | 2900 | | | | 352 | | |
| 8 | 92.— | 131,000 | 662,000 | | 131,000 | 5040 | 1000 | 11.0 | 53 | 2.5 | 212 | 3900 | 16,300 | | | 350 | | |
| 9 | 90.83 | 136,000 | | | 136,000 | | 1040 | 11.0 | 53 | 2.5 | 212 | 3000 | | | | 358 | | |
| 10 | 93.33 | 127,000 | | | 127,000 | | 960 | 11.1 | 55 | 2.5 | 212 | 2900 | | | | 357 | | |
| 11 | 90.83 | 131,000 | | | 131,000 | | 1000 | 11.0 | 53 | 2.5 | 212 | 3800 | | | | 355 | | |
| 12 | 91.33 | 136,000 | | | 136,000 | | 1030 | 11.1 | 54 | 2.5 | 212 | 3900 | | | | 340 | | |
| 13 | 91.— | 131,000 | 661,000 | | 131,000 | 5040 | 1000 | 11.0 | 54 | 2.5 | 212 | 3800 | 18,200 | | | 358 | | |
| 14 | 91.5 | 132,000 | | | 132,000 | | 1010 | 11.0 | 54 | 2.5 | 212 | 3500 | | | | 352 | | |
| 15 | 91.— | 131,000 | | | 131,000 | | 1000 | 11.1 | 56 | 2.5 | 212 | 3200 | | | | 360 | | |
| 16 | 89.— | 131,000 | | | 131,000 | | 990 | 11.1 | 53 | 2.5 | 212 | 3900 | | | | 358 | | |
| 17 | 91.— | 131,000 | | | 131,000 | | 1000 | 11.0 | 50 | 2.5 | 212 | 3900 | | | | 350 | | |
| 18 | 91.— | 135,000 | 649,000 | | 135,000 | 4940 | 1020 | 11.1 | 49 | 2.5 | 212 | 3200 | 17,800 | | | 358 | | |
| 19 | 92.— | 124,000 | | | 124,000 | | 950 | 11.0 | 49 | 2.5 | 212 | 3400 | | | | 343 | | |
| 20 | 93.41 | 128,000 | | | 128,000 | | 980 | 11.0 | 50 | 2.5 | 212 | 2900 | | | | 346 | | |
| 21 | 91.33 | 124,000 | | | 124,000 | | 950 | 11.0 | 49 | 2.5 | 212 | 3100 | | | | 348 | | |
| 22 | 90.91 | 132,000 | | | 132,000 | | 1010 | 11.0 | 45 | 2.5 | 212 | 3000 | | | | 352 | | |
| 23 | 91.87 | 128,000 | 642,000 | | 128,000 | 4900 | 980 | 11.0 | 45 | 2.5 | 212 | 2100 | 15,500 | | | 350 | | |
| 24 | 93.83 | 127,000 | | | 127,000 | | 960 | 11.1 | 44 | 2.5 | 212 | 3200 | | | | 341 | | |
| 25 | 93.— | 131,000 | | | 131,000 | | 1000 | 11.0 | 52 | 2.5 | 212 | 3100 | | | | 350 | | |
| 26 | 91.83 | 126,000 | | | 126,000 | | 960 | 11.0 | 62 | 2.5 | 212 | 2800 | | | | 348 | | |
| 27 | 91.75 | 123,000 | | | 123,000 | | 930 | 11.1 | 73 | 2.5 | 212 | 3200 | | | | 344 | | |
| 28 | 91.25 | 127,000 | 756,000 | | 127,000 | 5,760 | 960 | 11.1 | 72 | 2.5 | 212 | 2900 | 17,800 | | | 348 | | |
| 29 | 84.— | 124,000 | | | 124,000 | | 950 | 11.0 | 68 | 2.5 | 212 | 3300 | | | | 349 | | |
| 30 | 93.— | 128,000 | | | 128,000 | | 980 | 11.0 | 64 | 2.5 | 212 | 2100 | | | | 348 | | |
| 31 | 93.— | 128,000 | | | 128,000 | | 980 | 11.0 | 64 | 2.5 | 212 | 3500 | | | | 350 | | |
| TOTAL | | | 3,994,000 | | | 30,450 | | | | | | 10,900 | | | | | | |
| MAXIMUM | | | | | | | | | | | | | | | | | | |
| MINIMUM | | | | | | | | | | | | | | | | | | |
| AVERAGE | 91.73 | | | | | | | | | | | | | | | | | |

EVAPORATION LB. STEAM PER LB. STD. FUEL

FUEL USED DURING MONTH (STANDARD TONS)

REMARKS: AUGUST-1993

SEE REVERSE SIDE FOR INSTRUCTIONS

PREPARED BY | DATE | APPROVED BY | DATE | PO

DA FORM 3967, 1 NOV 72 — REPLACES DA FORM 598, 1 JUN 58, WHICH WILL BE USED.

I ILITIES ENGINEERING OPERATING LOG *(Boiler Plant)*

For use of this form, see AR 420-49; the proponent agency is the Corps of Engineers.

STALLATION: FT. Monmouth

PLANT: R.J. Myer CTR.

BLDG: 2

| DATE | STEAM PRESSURE LB (1) | STEAM PRODUCED BOILER 1 1,000 LB (2) | BOILER 2 1,000 LB (3) | BOILER 3 1,000 LB (4) | TOTAL 1,000 LB (5) | FEED-WATER TO BOILER 1,000 LB (6) | FUEL USED LB. M.C.F. GAL. (7) | EVAP. LB. PER UNIT (8) | OUTSIDE TEMP. AV. °F (9) | FEEDWATER HEATER PRESS. LB. (10) | FEEDWATER HEATER TEMP. °F (11) | MAKEUP GAL. (12) | %CO2 BOILER 1 (13) | %CO2 BOILER 2 (14) | %CO2 BOILER 3 (15) | FLUE GAS TEMPERATURE BOILER 1 °F (16) | BOILER 2 °F (17) | BOILER 3 °F (18) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 92— | 127,000 | | | 122,000 | | 970 | 11.0 | 63 | 2.5 | 212 | 3900 | | | | 354 | | |
| 2 | 92— | 131,000 | | | 131,000 | | 1000 | 11.0 | 58 | 2.5 | 212 | 3300 | | | | 350 | | |
| 92.3 3 | 92.33 | 123,000 | 636,000 | | 123,000 | 4840 | 930 | 11.1 | 62 | 2.5 | 212 | 3500 | 16,500 | | | 348 | | |
| 4 | 91.33 | 128,000 | | | 128,000 | | 980 | 11.0 | 58 | 2.5 | 212 | 2600 | | | | 345 | | |
| 5 | 92.66 | 127,000 | | | 127,000 | | 960 | 11.1 | 58 | 2.5 | 212 | 3300 | | | | 344 | | |
| 6 | 90.25 | 131,000 | | | 131,000 | | 990 | 11.1 | 52 | 2.5 | 212 | 2900 | | | | 352 | | |
| 7 | 94— | 111,000 | | | 111,000 | | 850 | 11.0 | 56 | 2.5 | 212 | 3500 | | | | 344 | | |
| 92.8 8 | 91.5 | 114,000 | 598,000 | | 114,000 | 4540 | 870 | 11.0 | 56 | 2.5 | 212 | 3700 | 17,200 | | | 335 | | |
| 9 | 92.— | 126,000 | | | 126,000 | | 950 | 11.1 | 56 | 2.5 | 212 | 3600 | | | | 335 | | |
| 10 | 92.58 | 116,000 | | | 116,000 | | 880 | 11.1 | 56 | 2.5 | 212 | 3500 | | | | 344 | | |
| 11 | 91.66 | 108,000 | | | 108,000 | | 820 | 11.1 | 54 | 2.5 | 212 | 3200 | | | | 340 | | |
| 12 | 92.— | 108,000 | | | 108,000 | | 820 | 11.1 | 46 | 2.5 | 212 | 3100 | | | | 343 | | |
| 92.53 13 | 92.66 | 106,000 | 518,000 | | 106,000 | 3940 | 810 | 11.0 | 59 | 2.5 | 212 | 2600 | 15,800 | | | 343 | | |
| 14 | 93.— | 101,000 | | | 101,000 | | 770 | 11.0 | 63 | 2.5 | 212 | 3400 | | | | 338 | | |
| 15 | 92.33 | 85,000 | | | 85,000 | | 720 | 11.1 | 63 | 2.5 | 212 | 3500 | | | | 335 | | |
| 16 | 92.25 | 99,000 | | | 99,000 | | 750 | 11.1 | 56 | 2.5 | 212 | 2900 | | | | 332 | | |
| 17 | 91.25 | 104,000 | | | 104,000 | | 790 | 11.1 | 52 | 2.5 | 212 | 3600 | | | | 341 | | |
| 92.30 18 | 93.— | 99,000 | 516,000 | | 99,000 | 3920 | 750 | 11.1 | 51 | 2.5 | 212 | 3300 | 15,600 | | | 332 | | |
| 19 | 92.— | 101,000 | | | 101,000 | | 770 | 11.1 | 50 | 2.5 | 212 | 2900 | | | | 330 | | |
| 20 | 92.5 | 113,000 | | | 113,000 | | 860 | 11.0 | 47 | 2.5 | 212 | 2900 | | | | 339 | | |
| 21 | 92.33 | 90,000 | | | 90,000 | | 690 | 11.0 | 46? | 2.5 | 212 | 2800 | | | | 330 | | |
| 22 | 91.91 | 94,000 | | | 94,000 | | 710 | 11.0 | 46? | 2.5 | 212 | 3400 | | | | 338 | | |
| 93.18 23 | 94.25 | 91,000 | 456,000 | | 91,000 | 3420 | 690 | 11.1 | 46? | 2.5 | 212 | 3500 | 16,700 | | | 338 | | |
| 24 | 94.75 | 89,000 | | | 89,000 | | 680 | 11.0 | 46? | 2.5 | 212 | 3200 | | | | 331 | | |
| 25 | 91.66 | 95,000 | | | 93,000 | | 700 | 11.0 | 46? | 2.5 | 212 | 3800 | | | | 345 | | |
| 26 | 92.91 | 89,000 | | | 89,000 | | 680 | 11.0 | 46? | 2.5 | 212 | 3100 | | | | 328 | | |
| 27 | 92.25 | 81,000 | | | 81,000 | | 610 | 11.1 | 52 | 2.5 | 212 | 3900 | | | | 331 | | |
| 91.79 28 | 90.5 | 98,000 | 449,000 | | 98,000 | 3420 | 750 | 11.0 | 54 | 2.5 | 212 | 3500 | 18,300 | | | 330 | | |
| 29 | 91.83 | 89,000 | | | 89,000 | | 680 | 11.0 | 52 | 2.5 | 212 | 4022 | | | | 335 | | |
| 30 | 91.5 | 95,000 | | | 92,000 | | 700 | 11.0 | 46 | 2.5 | 212 | 3800 | | | | 342 | | |
| 31 | | | | | | | | | | | | | | | | | | |
| TOTAL | | | 3173,000 | | | 24,130 | | 11.0 | | | | 100,00 | | | | | | |
| MAXIMUM | | | | | | | | | | | | | | | | | | |
| MINIMUM | | | | | | | | | | | | | | | | | | |
| AVERAGE | 92.30 | | | | | | | | | | | | | | | | | |

EVAPORATION LB. STEAM PER LB. STD. FUEL

FUEL USED DURING MONTH (STANDARD TONS)

REMARKS: September - 1993

SEE REVERSE SIDE FOR INSTRUCTIONS

PREPARED BY | DATE | APPROVED BY | DATE

DA FORM 3967, 1 NOV 72 — REPLACES DA FORM 6-98, 1 JUN 68, WHICH WILL BE USED.

FA ITIES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420 49, the proponent agency is the Corps of Engineers.

'ALLATION: FT. Monmouth

PLANT: A.J. Myer CTR

BLDG NO: 22

| DATE | STEAM PRESSURE LB (1) | STEAM PRODUCED BOILER 1 1,000 LB (2) | BOILER 2 1,000 LB (3) | BOILER 3 1,000 LB (4) | TOTAL 1,000 LB (5) | FEED-WATER TO BOILER 1,000 LB (6) | FUEL USED LB. M C.F. GAL. (7) | EVAP. LB. PER UNIT (8) | OUTSIDE TEMP. AV. °F (9) | FEEDWATER HEATER PRESS. LB. (10) | FEEDWATER HEATER TEMP. °F (11) | FEEDWATER HEATER MAKEUP GAL. (12) | %CO2 BOILER 1 (13) | %CO2 BOILER 2 (14) | %CO2 BOILER 3 (15) | FLUE GAS TEMPERATURE BOILER 1 °F (16) | BOILER 2 °F (17) | BOILER 3 °F (18) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 92.25 | 87,000 | | | 87,000 | | 670 | 11.0 | 46 | 2.5 | 212 | 3400 | | | | 346 | | |
| 2 | 92.— | 90,000 | | | 90,000 | | 690 | 11.0 | 46 | 2.5 | 212 | 3900 | | | | 333 | | |
| 91.93 3 | 91.58 | 81,000 | 444,000 | | 81,000 | 3,400 | 620 | 11.0 | 46 | 2.5 | 212 | 3900 | | | | 336 | | |
| 4 | 92.75 | 84,000 | | | 84,000 | | 640 | 11.0 | 46 | 2.5 | 212 | 3400 | 17,600 | | | 330 | | |
| 5 | 89.33 | 102,000 | | | 102,000 | | 780 | 11.0 | 46 | 2.5 | 212 | 3900 | | | | 338 | | |
| 6 | 92.66 | 124,000 | | | 124,000 | | 950 | 11.0 | 46 | 2.5 | 212 | 4200 | | | | 345 | | |
| 7 | 91.— | 115,000 | | | 115,000 | | 880 | 11.0 | 46 | 2.5 | 212 | 3000 | | | | 346 | | |
| 90.60 8 | 91.32 | 75,000 | 450,000 | | 75,000 | 3440 | 570 | 11.0 | 46 | 2.5 | 212 | 2400 | | | | 340 | | |
| 9 | 87.— | 30,000 | | | 30,000 | | 230 | 11.1 | 46 | 2.5 | 212 | 1500 | 13,300 | | | 330 | | |
| 10 | 91.— | 106,000 | | | 106,000 | | 810 | 11.0 | 46 | 2.5 | 212 | 3200 | | | | 336 | | |
| 11 | 92.41 | 119,000 | | | 119,000 | | 900 | 11.0 | 46 | 2.5 | 212 | 3500 | | | | 335 | | |
| 12 | 94.— | 111,000 | | | 111,000 | | 850 | 11.1 | 46 | 2.5 | 212 | 3300 | | | | 334 | | |
| 92.38 13 | 91.— | 122,000 | 628,000 | | 122,000 | 4780 | 960 | 11.0 | 46 | 2.5 | 212 | 4000 | | | | 355 | | |
| 14 | 92.— | 131,000 | | | 131,000 | | 1000 | 11.1 | 46 | 2.5 | 212 | 4200 | 18,700 | | | 350 | | |
| 15 | 92.— | 140,000 | | | 140,000 | | 1070 | 11.0 | 46 | 2.5 | 212 | 3800 | | | | 350 | | |
| 16 | 91.— | 132,000 | | | 132,000 | | 1010 | 11.0 | 46 | 2.5 | 212 | 3500 | | | | 342 | | |
| 17 | 91.33 | 126,000 | | | 126,050 | | 960 | 11.0 | 46 | 2.5 | 212 | 3200 | | | | 343 | | |
| 90.98 18 | 92.25 | 119,000 | 657,000 | | 119,000 | 5010 | 900 | 11.1 | 46 | 2.5 | 212 | 3000 | | | | 341 | | |
| 19 | 88.66 | 144,000 | | | 144,000 | | 1100 | 11.0 | 46 | 2.5 | 212 | 3300 | 16,400 | | | 352 | | |
| 20 | 91.66 | 134,000 | | | 134,000 | | 1040 | 11.0 | 46 | 2.5 | 212 | 3400 | | | | 357 | | |
| 21 | 93.— | 119,000 | | | 119,000 | | 900 | 11.1 | 46 | 2.5 | 212 | 3500 | | | | 340 | | |
| 22 | 91.5 | 141,000 | | | 141,000 | | 1080 | 11.0 | 46 | 2.5 | 212 | 3500 | | | | 348 | | |
| 91.75 23 | 91.— | 152,000 | 711,000 | | 152,000 | 5430 | 1200 | 11.0 | 46 | 2.5 | 212 | 3300 | | | | 358 | | |
| 24 | 91.25 | 145,000 | | | 145,000 | | 1110 | 11.0 | 46 | 2.5 | 212 | 2200 | 16,500 | | | 348 | | |
| 25 | 92.— | 149,000 | | | 149,000 | | 1140 | 11.0 | 46 | 2.5 | 212 | 4000 | | | | 349 | | |
| 26 | 92.— | 152,000 | | | 152,000 | | 1150 | 11.1 | 46 | 2.5 | 212 | 4500 | | | | 355 | | |
| 27 | 92.— | 152,000 | | | 152,000 | | 1150 | 11.1 | 46 | 2.5 | 212 | 2400 | | | | 357 | | |
| 28 | 91.25 | 149,000 | | | 149,000 | | 1140 | 11.0 | 46 | 2.5 | 212 | 2542 | | | | 348 | | |
| 91.59 29 | 92.— | 139,000 | 935,000 | | 139,000 | 7110 | 1060 | 11.0 | 46 | 2.5 | 212 | 3700 | [illegible] | | | 341 | | |
| 30 | 91.— | 165,000 | | | 165,000 | | 1250 | 11.1 | 46 | 2.5 | 212 | 3400 | | | | 353 | | |
| 31 | 91.33 | 178,000 | | | 178,000 | | 1360 | 11.0 | 46 | 2.5 | 212 | 4100 | | | | 360 | | |
| TOTAL | | | 3,825,000 | | | 29170 | | 11.0 | | | | 123,130 | | | | | | |
| MAXIMUM | | | | | | | | | | | | | | | | | | |
| MINIMUM | | | | | | | | | | | | | | | | | | |
| AVERAGE | 91.53 | | | | | | | | | | | | | | | | | |

EVAPORATION LB. STEAM PER LB. STD. FUEL

FUEL USED DURING MONTH (STANDARD TONS)

REMARKS: October -1993

SEE REVERSE SIDE FOR INSTRUCTIONS

PREPARED BY

DATE

APPROVED BY

DATE

DA FORM 3967 1 NOV 72 REPLACES DA FORM 5 98. 1 JUN 58, WHICH WILL BE USED. 22060

# FA… TIES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420-49, the proponent agency is the Corps of Engineers.

…LLATION: Ft. Monmouth

PLANT: A.S. Myer CTR.

BLDG NO: 27

| DATE | STEAM PRESSURE LB. (1) | STEAM PRODUCED BOILER 1 1,000 LB. (2) | BOILER 2 1,000 LB. (3) | BOILER 3 1,000 LB. (4) | TOTAL 1,000 LB. (5) | FEED-WATER TO BOILER 1,000 LB. (6) | FUEL USED LB. M.C.F. GAL. (7) | EVAP. LB. PER UNIT (8) | OUTSIDE TEMP. AV. °F. (9) | FEEDWATER HEATER PRESS. LB. (10) | FEEDWATER HEATER TEMP. °F. (11) | MAKEUP GAL. (12) | %CO2 BOILER 1 (13) | %CO2 BOILER 2 (14) | %CO2 BOILER 3 (15) | FLUE GAS TEMPERATURE BOILER 1 °F (16) | BOILER 2 °F (17) | BOILER 3 °F (18) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 92 | 194,000 | | | 194,000 | | 1480 | 11.0 | 46 | 2.5 | 212 | 3800 | | | | 362 | | |
| 2 | 89.66 | 202,000 | | | 202,000 | | 1570 | 11.1 | 46 | 2.5 | 212 | 1800 | | | | 342 | | |
| 91.24 3 | 91 | 198,000 | 901,000 | | 198,000 | 4,860 | 1500 | 11.1 | 46 | 2.5 | 212 | 2330 | | | | 358 | | |
| 4 | 91.75 | 166,000 | | | 166,000 | | 1270 | 11.0 | 46 | 2.5 | 212 | 3400 | 14200 | | | 352 | | |
| 5 | 92.33 | 136,000 | | | 136,000 | | 1040 | 11.0 | 46 | 2.5 | 212 | 2900 | | | | 347 | | |
| 6 | 93.— | 59,000 | Plant | Down | 59,000 | | 450 | 11.1 | 46 | 2.5 | 212 | 1200 | | | | 348 | | |
| 7 | 92.5 | 198,000 | | | 198,000 | | 1520 | 11.1 | 46 | 2.5 | 212 | 3100 | Plant | Down | | 355 | Plant | Down |
| 11 20 8 | 91.— | 198,000 | 844,000 | | 198,000 | 6420 | 1510 | 11.1 | 46 | 2.5 | 212 | 3500 | | | | 366 | | |
| 9 | 92.— | 198,000 | | | 198,000 | | 1500 | 11.1 | 46 | 2.5 | 212 | 1700 | 12,900 | | | 370 | | |
| 10 | 91.— | 191,000 | | | 191,000 | | 1460 | 11.0 | 46 | 2.5 | 212 | 3400 | | | | 364 | | |
| 11 | 92.58 | 182,000 | | | 182,000 | | 1390 | 11.0 | 46 | 2.5 | 212 | 3100 | | | | 363 | | |
| 12 | 91.58 | 160,000 | | | 160,000 | | 1210 | 11.1 | 46 | 2.5 | 212 | 2800 | | | | 353 | | |
| 91.94 13 | 91.91 | 152,000 | 757,000 | | 152,000 | 5750 | 1180 | 11.1 | 46 | 2.5 | 212 | 2700 | | | | 348 | | |
| 14 | 91.66 | 135,000 | | | 135,000 | | 1080 | 11.1 | 46 | 2.5 | 212 | 2980 | 13,900 | | | 344 | | |
| 15 | 92.— | 124,000 | | | 124,000 | | 950 | 11.0 | 46 | 2.5 | 212 | 3400 | | | | 332 | | |
| 16 | 91.83 | 166,000 | | | 166,000 | | 1270 | 11.0 | 46 | 2.5 | 212 | 3200 | | | | 361 | | |
| 17 | 92.— | 165,000 | | | 165,000 | | 1250 | 11.1 | 46 | 2.5 | 212 | 2900 | | | | 351 | | |
| 91.34 18 | 91.25 | 160,000 | 831,000 | | 160,000 | 6330 | 1210 | 11.1 | 46 | 2.5 | 212 | 2600 | | | | 356 | | |
| 19 | 91.25 | 166,000 | | | 166,000 | | 1270 | 11.0 | 46 | 2.5 | 212 | 2600 | 13,400 | | | 362 | | |
| 20 | 90.41 | 174,000 | | | 174,000 | | 1330 | 11.0 | 46 | 2.5 | 212 | 2100 | | | | 357 | | |
| 21 | 90.25 | 189,000 | | | 189,000 | | 1430 | 11.1 | 46 | 2.5 | 212 | 2800 | | | | 360 | | |
| 22 | 91.58 | 186,000 | | | 186,000 | | 1420 | 11.0 | 46 | 2.5 | 212 | 3400 | | | | 358 | | |
| 91.44 23 | 92.— | 182,000 | 954,000 | | 182,000 | 7270 | 1390 | 11.0 | 46 | 2.5 | 212 | 2800 | | | | 365 | | |
| 24 | 91.41 | 186,000 | | | 186,000 | | 1420 | 11.0 | 46 | 2.5 | 212 | 2800 | 14900 | | | 351 | | |
| 25 | 91.5 | 211,000 | | | 211,000 | | 1610 | 11.0 | 46 | 2.5 | 212 | 3100 | | | | 323 | | |
| 26 | 91.33 | 221,000 | | | 221,000 | | 1490 | 11.0 | 46 | 2.5 | 212 | 2700 | | | | 322 | | |
| 27 | 91.75 | 181,000 | | | 181,000 | | 1380 | 11.0 | 46 | 2.5 | 212 | 3400 | | | | 353 | | |
| 91.67 28 | 91.— | 152,000 | 945,000 | | 152,000 | 7190 | 1150 | 11.1 | 46 | 2.5 | 212 | 3000 | | | | 355 | | |
| 29 | 92.29 | 202,000 | | | 202,000 | | 1540 | 11.0 | 46 | 2.5 | 212 | 2900 | 13900 | | | 366 | | |
| 30 | 92.— | 189,000 | | | 189,000 | | 1430 | 11.1 | 46 | 2.5 | 212 | 1900 | | | | 325 | | |
| 31 | | | | | | | | | | | | | | | | | | |
| TOTAL | | | 5,233,000 | | | 39,820 | | | | | | 83,100 | | | | | | |
| MAXIMUM | | | | | | | | | | | | | | | | | | |
| MINIMUM | | | | | | | | | | | | | | | | | | |
| AVERAGE | 91.67 | | | | | | | 11.0 | | | | | | | | | | |

EVAPORATION LB. STEAM PER LB. STD. FUEL

FUEL USED DURING MONTH (STANDARD TONS)

REMARKS: November - 1993

SEE REVERSE SIDE FOR INSTRUCTIONS

PREPARED BY | DATE | APPROVED BY | DATE

DA FORM 3967, 1 NOV 72 — REPLACES DA FORM 5-98, 1 JUN 68, WHICH WILL BE USED.

# FAC. IES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420-49, the proponent agency is the Corps of Engineers.

IN LATION: Ft. Monmouth

PLANT: A.J. Myer CTR.

BLDG NO: 27[illegible]

| DATE | STEAM PRESSURE LB (1) | STEAM PRODUCED BOILER 1 1,000 LB (2) | BOILER 2 1,000 LB (3) | BOILER 3 1,000 LB (4) | TOTAL 1,000 LB (5) | FEED-WATER TO BOILER 1,000 LB (6) | FUEL USED LB. M.C.F. GAL. (7) | EVAP. LB. PER UNIT (8) | OUTSIDE TEMP. AV. °F (9) | FEEDWATER HEATER PRESS. LB (10) | FEEDWATER HEATER TEMP. °F (11) | MAKEUP GAL. (12) | %CO2 BOILER 1 (13) | %CO2 BOILER 2 (14) | %CO2 BOILER 3 (15) | FLUE GAS TEMPERATURE BOILER 1 °F (16) | BOILER 2 °F (17) | BOILER 3 °F (18) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 91.41 | 211,000 | | | 211,000 | | 1610 | 11.0 | 46 | 2.5 | 212 | 2600 | | | | 322 | | |
| 2 | 91.25 | 128,000 | | | 128,000 | | 1360 | 11.0 | 46 | 2.5 | 212 | 2300 | | | | 363 | | |
| 7/ 3 43 | 92.41 | 123,000 | 895,000 | | 173,000 | 6820 | 1320 | 11.0 | 46 | 2.5 | 212 | 2200 | 11,500 | | | 352 | | |
| 4 | 91.83 | 173,000 | | | 173,000 | | 1310 | 11.1 | 46 | 2.5 | 212 | 2300 | | | | 352 | | |
| 5 | 90.— | 160,000 | | | 160,000 | | 1220 | 11.0 | 46 | 2.5 | 212 | 2100 | | | | 342 | | |
| 6 | 92.75 | 194,000 | | | 194,000 | | 1470 | 11.1 | 46 | 2.5 | 212 | 1500 | | | | 360 | | |
| 7 | 91.66 | 183,000 | | | 183,000 | | 1400 | 11.0 | 46 | 2.5 | 212 | 1400 | | | | 359 | | |
| 8  54 | 91.— | 187,000 | 920,000 | | 187,000 | 7010 | 1430 | 11.0 | 46 | 2.5 | 212 | 3200 | 13,700 | | | 359 | | |
| 9 | 92.33 | 187,000 | | | 187,000 | | 1430 | 11.0 | 46 | 2.5 | 212 | 3800 | | | | 359 | | |
| 10 | 92.— | 169,000 | | | 169,000 | | 1280 | 11.0 | 46 | 2.5 | 212 | 3800 | | | | 354 | | |
| 11 | 91.25 | 199,000 | | | 199,000 | | 1520 | 11.0 | 46 | 2.5 | 212 | 4200 | ? | | | 362 | | |
| 12 | 92.— | 212,000 | | | 212,000 | | 1620 | 11.0 | 46 | 2.5 | 212 | 6400 | | | | 370 | | |
| 13 46 | 92.5 | 220,000 | 1069,000 | | 220,000 | 8120 | 1680 | 11.0 | 43 | 2.5 | 212 | 4200 | 31,200 | | | 406 | | |
| 14 | 92.— | 234,000 | | | 234,000 | | 1290 | 11.0 | 43 | 2.5 | 212 | 3400 | | | | 383 | | |
| 15 | 91.58 | 204,000 | | | 204,000 | | 1560 | 11.0 | 35 | 2.5 | 212 | 2900 | | | | 402 | | |
| 16 | 91.66 | 230,000 | | | 230,000 | | 1760 | 11.0 | 33 | 2.5 | 212 | 3500 | | | | 403 | | |
| 17 | 92.41 | 259,000 | | | 259,000 | | 1960 | 11.1 | 30 | 2.5 | 212 | 3200 | | | | 404 | | |
| 18 | 92.41 | 267,000 | 1213,000 | | 267,000 | 9250 | 2040 | 11.0 | 30 | 2.5 | 212 | 4000 | 19,800 | | | 406 | | |
| 19 | 91.— | 219,000 | | | 219,000 | | 1670 | 11.0 | 30 | 2.5 | 212 | 4400 | | | | 404 | | |
| 20 | 93.16 | 238,000 | | | 238,000 | | 1820 | 11.0 | 30 | 2.5 | 212 | 4700 | | | | 402 | | |
| 21 | 91.58 | 216,000 | | | 216,000 | | 1650 | 11.0 | 30 | 2.5 | 212 | 4900 | | | | 429 | | |
| 22 | 90.41 | 259,000 | | | 259,000 | | 1980 | 11.0 | 30 | 2.5 | 212 | 4000 | | | | 412 | | |
| 23 61 | 90.71 | 262,000 | 1,271,000 | | 262,000 | 9690 | 2000 | 11.0 | 28 | 2.5 | 212 | 3200 | 18,600 | | | 425 | | |
| 24 | 91.15 | 222,000 | | | 222,000 | | 2040 | 11.1 | 28 | 2.5 | 212 | 3800 | | | | 414 | | |
| 25 | 91.66 | 262,000 | | | 262,000 | | 2000 | 11.0 | 28 | 2.5 | 212 | 3400 | | | | 422 | | |
| 26 | 91.66 | 309,000 | | | 309,000 | | 2360 | 11.0 | 28 | 2.5 | 212 | 3800 | | | | 423 | | |
| 27 | 91.— | 324,000 | | | 324,000 | | 2490 | 11.0 | 28 | 2.5 | 212 | 3000 | | | | 436 | | |
| 28 63 | 93.54 | 329,000 | 1,905,000 | | 329,000 | 14560 | 2510 | 11.0 | 28 | 2.5 | 212 | 3800 | 15,000 | | | 433 | | |
| 29 | 93.58 | 322,000 | | | 322,000 | | 2440 | 11.1 | 28 | 2.5 | 212 | 3800 | | | | 428 | | |
| 30 | 94.00 | 313,000 | | | 313,000 | | 2390 | 11.0 | 28 | 2.5 | 212 | 3000 | | | | 413 | | |
| 31 | 92.— | 310,000 | | | 310,000 | | 2370 | 11.0 | 28 | 2.5 | 212 | 3000 | | | | 428 | | |
| TOTAL | | | 7,273,000 | | | 55,500 | | 11.0 | | | | 102,300 | | | | | | |
| MAXIMUM | | | | | | | | | | | | | | | | | | |
| MINIMUM | | | | | | | | | | | | | | | | | | |
| AVERAGE | 91.32 | | | | | | | | | | | | | | | | | |

EVAPORATION LB. STEAM PER LB. STD. FUEL

FUEL USED DURING MONTH (STANDARD TONS)

REMARKS: December - 1993

SEE REVERSE SIDE FOR INSTRUCTIONS

PREPARED BY | DATE | APPROVED BY | DATE

DA FORM 3967, 1 NOV 72 REPLACES DA FORM 5-98, 1 JUN 68, WHICH WILL BE USED.

FA   ;TIES ENGINEERING OPERATING LOG *(Boiler Plant)*

For use of this form, see AR 420 49, the proponent agency is the Corps of Engineers.

ALLATION: FT. Monmouth

PLANT: A.J. Myer Ctr

BLDG NO: 22

| DATE | STEAM PRESSURE LB (1) | STEAM PRODUCED BOILER 1 1,000 LB (2) | BOILER 2 1,000 LB (3) | BOILER 3 1,000 LB (4) | TOTAL 1,000 LB (5) | FEED-WATER TO BOILER 1,000 LB (6) | FUEL USED LB. M.C.F. GAL. (7) | EVAP. LB PER UNIT (8) | OUTSIDE TEMP. AV. °F (9) | FEEDWATER HEATER PRESS. LB (10) | FEEDWATER HEATER TEMP. °F (11) | MAKEUP GAL. (12) | %CO2 BOILER 1 (13) | %CO2 BOILER 2 (14) | %CO2 BOILER 3 (15) | FLUE GAS TEMPERATURE BOILER 1 °F (16) | BOILER 2 °F (17) | BOILER 3 °F (18) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 91.25 | | 258,000 | | 258000 | | 1920 | 11.0 | | 2.5 | 212 | 3000 | | | | | 413 | |
| 2 | 93.— | | 233,000 | | 233,000 | | 1280 | 11.0 | | 2.5 | 212 | 3000 | | | | | 412 | |
| 91 3 62 | 92.29 | | 279,000 | 1351,000 | 229,000 | 10,280 | 2130 | 11.0 | | 2.5 | 212 | 3000 | | | | | 434 | |
| 4 | 90.25 | | 289,000 | | 289,000 | | 2120 | 11.1 | | 2.5 | 212 | 3000 | 15,000 | | | | 434 | |
| 5 | 90.83 | | 301,000 | | 301,000 | | 2280 | 11.1 | | 2.5 | 212 | 3000 | | | | | 437 | |
| 6 | 91.83 | | 313,000 | | 313,000 | | 2370 | 11.1 | | 2.5 | 212 | 3000 | | | | | 431 | |
| 7 | 92.66 | | 309,000 | | 309,000 | | 2340 | 11.1 | | 2.5 | 212 | 3500 | | | | | 428 | |
| 91 8 95 | 91.— | | 318,000 | 1646,000 | 318,000 | 13,180 | 2430 | 11.0 | | 2.5 | 212 | 2800 | | | | | 432 | |
| 9 | 91.44 | | 345,000 | | 345,000 | | 2610 | 11.1 | | 2.5 | 212 | 2800 | 12,500 | | | | 442 | |
| 10 | 90.33 | | 364,000 | | 364,000 | | 2730 | 11.1 | | 2.5 | 212 | 3800 | | | | | 455 | |
| 11 | 92.25 | | 322,000 | | 322,000 | | 2440 | 11.1 | | 2.5 | 212 | 3460 | | | | | 439 | |
| 12 | 90.— | | 289,000 | | 289,000 | | 2190 | 11.1 | | 2.5 | 212 | 4100 | | | | | 432 | |
| 91 13 71 | 93.5 | | 259,000 | 1497,000 | 259,000 | 11,380 | 1980 | 11.0 | | 2.5 | 212 | 3400 | | | | | 425 | |
| 14 | 91.— | | 376,000 | | 376,000 | | 2090 | 11.1 | | 2.5 | 212 | 2800 | 16,800 | | | | 421 | |
| 15 | 91.83 | | 351,000 | | 351,000 | | 2280 | 11.0 | | 2.5 | 212 | 3500 | | | | | 443 | |
| 16 | 92.33 | | 356,000 | | 356,000 | | 2720 | 11.0 | | 2.5 | 212 | 3000 | | | | | 453 | |
| 17 | 92.— | | 330,000 | 1697,000 | 330,000 | | 2520 | 11.0 | | 2.5 | 212 | 3000 | | | | | 442 | |
| [illegible] 18 49 | 89.33 | | 370,000 | | 370,000 | 14,670 | 2800 | 11.1 | | 2.5 | 212 | 3000 | | | | | 450 | |
| 19 | 90.5 | | 418,000 | | 418,000 | | 3400 | 11.0 | | 2.5 | 212 | 4000 | 17,900 | | | | 455 | |
| 20 | 91.33 | | 423,000 | | 423,000 | | 3230 | 11.0 | | 2.5 | 212 | 3400 | | | | | 420 | |
| 21 | 91.62 | | 395,000 | | 395,000 | | 2990 | 11.1 | | 2.5 | 212 | 4500 | | | | | 455 | |
| 22 | 92.— | | 349,000 | | 349,000 | | 2640 | 11.1 | | 2.5 | 212 | 3000 | | | | | 450 | |
| 92 23 22 | 91.83 | | 323,000 | 1633,000 | 323,000 | 12,330 | 2470 | 11.0 | | 2.5 | 212 | 3000 | | | | | 443 | |
| 24 | 94.— | | 267,000 | | 267,000 | | 2040 | 11.0 | | 2.5 | 212 | 4000 | 18,500 | | | | 431 | |
| 25 | 91.91 | | 289,000 | | 289,000 | | 2190 | 11.1 | | 2.5 | 212 | 4500 | | | | | 441 | |
| 26 | 92.— | | 338,000 | | 338,000 | | 2580 | 11.0 | | 2.5 | 212 | 4000 | | | | | 442 | |
| 27 | 91.— | | 341,000 | 1732,00 | 341,000 | | 2580 | 11.1 | | 2.5 | 212 | 4500 | | | | | 441 | |
| 9? 28 21 | 93.58 | | 237,000 | | 237,000 | 13,200 | 1810 | 11.0 | | 2.5 | 212 | 3500 | | | | | 419 | |
| 29 | 93.— | | 250,000 | | 250,000 | | 1830 | 11.1 | | 2.5 | 212 | 2800 | 11,600 | | | | 422 | |
| 30 | 92.— | | 275,000 | | 275,000 | | 2100 | 11.0 | | 2.5 | 212 | 4000 | | | | | 437 | |
| 31 | 92.— | | 294,000 | | 294,000 | | 2240 | 11.1 | | 2.5 | 212 | 3200 | | | | | 431 | |
| TOTAL | | | 97[illegible] | 1,000 | | 61,140 | | 11.1 | | | | 10[illegible],300 | | | | | | |
| MAXIMUM | | | | | | | | | | | | | | | | | | |
| MINIMUM | | | | | | | | | | | | | | | | | | |
| AVERAGE | 91.63 | | | | | | | | | | | | | | | | | |

EVAPORATION LB. STEAM PER LB. STD. FUEL

FUEL USED DURING MONTH (STANDARD TONS)

REMARKS: #2 Boiler 31 DAYS

SEE REVERSE SIDE FOR INSTRUCTIONS

PREPARED BY

DATE

APPROVED BY: JANUARY-1994

DATE

DA FORM 3967 1 NOV 72 REPLACES DA FORM 5-98, 1 JUN 68, WHICH WILL BE USED.

**FACILITIES ENGINEERING OPERATING LOG** *(Boiler Plant)*

For use of this form, see AR 420-49, the proponent agency is the Corps of Engineers.

INSTALLATION: FT. Monmouth | PLANT: N.J. Myer CTR | BLDG NO: 27?

| DATE | STEAM PRESSURE LB (1) | STEAM PRODUCED BOILER 1 1,000 LB (2) | BOILER 2 1,000 LB (3) | BOILER 3 1,000 LB (4) | TOTAL 1,000 LB (5) | FEED WATER TO BOILER 1,000 LB (6) | FUEL USED LB M.C.F. GAL (7) | EVAP. LB. PER UNIT (8) | OUTSIDE TEMP. AV. °F (9) | FEEDWATER HEATER PRESS. LB (10) | FEEDWATER HEATER TEMP. °F (11) | MAKEUP GAL (12) | % CO2 BOILER 1 (13) | % CO2 BOILER 2 (14) | % CO2 BOILER 3 (15) | FLUE GAS TEMPERATURE BOILER 1 °F (16) | BOILER 2 °F (17) | BOILER 3 °F (18) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 91 | | 318,000 | 15 | 318,000 | | 2430 | 11.0 | | 2.5 | 212 | 3200 | | | | | 452 | |
| 2 | 91.66 | | 343,000 | 25 | 343,000 | | 2680 | 11.0 | | 2.5 | 212 | 3800 | | | | | 440 | |
| 91.39 3 | 91.66 | | 309,000 | 000 | 309,000 | 11,850 | 2360 | 11.0 | | 2.5 | 212 | 2000 | | | | | 436 | |
| 4 | 91.83 | | 309,000 | | 309,000 | | 2340 | 11.1? | | 2.5 | 212 | 8500 | 12,500 | | | | 438 | |
| 5 | 91.33 | | 275,000 | | 275,000 | | 2100 | 11.0 | | 2.5 | 212 | 4000 | | | | | 426 | |
| 6 | 92.33 | | 267,000 | 15 | 267,000 | | 2020 | 11.1 | | 2.5 | 212 | 3000 | | | | | 439 | |
| 7 | 93.2? | | 271,000 | 77 | 271,000 | | 2050 | 11.1 | | 2.5 | 212 | 3300 | | | | | 430 | |
| 91.61 8 | 90. | | 339,000 | 300 | 339,000 | 11,980 | 2590 | 11.0 | | 2.5 | 212 | 4000 | | | | | 454 | |
| 9 | 91.25 | | 335,000 | | 335,000 | | 2560 | 11.0 | | 2.5 | 212 | 4000 | 18,800 | | | | 445 | |
| 10 | 91 | | 365,000 | | 365,000 | | 2760 | 11.1 | | 2.5 | 212 | 4000 | | | | | 442 | |
| 11 | 92.41 | | 358,000 | 1603 | 358,000 | | 2710 | 11.1 | | 2.5 | 212 | 4000 | | | | | 449 | |
| 12 | 92.83 | | 325,000 | 30 | 325,000 | | 2480 | 11.0 | | 2.5 | 212 | 4300 | | | | | 450 | |
| 92.11 13 | 91.75 | | 323,000 | 0 | 323,000 | 12,160 | 2220 | 11.1 | | 2.5 | 212 | 3000 | | | | | 433 | |
| 14 | 92.33 | | 322,000 | | 322,000 | | 2440 | 11.1 | | 2.5 | 212 | 4000 | 20,300 | | | | 445 | |
| 15 | 91 | | 305,000 | | 305,000 | | 2310 | 11.1 | | 2.5 | 212 | 5000 | | | | | 443 | |
| 16 | 91 | | 272,000 | 12 | 272,000 | | 2060 | 11.1 | | 2.5 | 212 | 5000 | | | | | 433 | |
| 17 | 93 | | 284,000 | 54 | 284,000 | | 2150 | 11.1 | | 2.5 | 212 | 4000 | | | | | 435 | |
| 92.54 18 | 93.25 | | 254,000 | 500 | 254,000 | 9530 | 1940 | 11.0 | | 2.5 | 212 | 4500 | | | | | 422 | |
| 19 | 91.91 | | 237,000 | | 237,000 | | 1810 | 11.0 | | 2.5 | 212 | 3800 | 20,700 | | | | 421 | |
| 20 | 93.58 | | 207,000 | | 207,000 | | 1570 | 11.1 | | 2.5 | 212 | 3400 | | | | | 411 | |
| 21 | 93.91 | | 211,000 | 13 | 211,000 | | 1610 | 11.0 | | 2.5 | 212 | 3100 | | | | | 412 | |
| 22 | 91.66 | | 242,000 | 23 | 242,000 | | 1830 | 11.1 | | 2.5 | 212 | 4000 | | | | | 422 | |
| 91.92 23 | 90.41 | | 289,000 | 20 | 289,000 | 10,030 | 2190 | 11.1 | | 2.5 | 212 | 4700 | | | | | 431 | |
| 24 | 91.62 | | 276,000 | 00 | 276,000 | | 2090 | 11.1 | | 2.5 | 212 | 5000 | 20,800 | | | | 432 | |
| 25 | 92 | | 305,000 | | 305,000 | | 2310 | 11.1 | | 2.5 | 212 | 4000 | | | | | 433 | |
| 26 | 91 | | 329,000 | 10 | 329,000 | | 2340 | 11.1 | | 2.5 | 212 | 4000 | | | | | 443 | |
| 27 | 93.? | | 358,000 | 44 | 358,000 | 7,930 | 2710 | 11.1 | | 2.5 | 212 | 3900 | | | | | 453 | |
| 28 | 90 | | 372,000 | 200 | 372,000 | | 2880 | 11.0 | | 2.5 | 212 | 3200 | 11,600 | | | | 447 | |
| 29 | | | | | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | |
| TOTAL | 91.64 | | 8,335,000 | | | 634 | 50 | 11.1 | | | | 109,700 | | | | | | |
| MAXIMUM | | | | | | | | | | | | | | | | | | |
| MINIMUM | | | | | | | | | | | | | | | | | | |
| AVERAGE | | | | | | | | | | | | | | | | | 10.9% | |

EVAPORATION LB. STEAM PER LB. STD. FUEL

FUEL USED DURING MONTH (STANDARD TONS)

REMARKS: #2 Boiler 28 Day

SEE REVERSE SIDE FOR INSTRUCTIONS

PREPARED BY | DATE | APPROVED BY: Febuary-1994 | DATE

DA FORM 3967, 1 NOV 72 REPLACES DA FORM 5-98, 1 JUN 58, WHICH WILL BE USED.

FACILITIES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420-49, the proponent agency is the Corps of Engineers.

INSTALLATION: FT. Monmouth

PLANT: A.J. Myer CTR

BLDG NO: 27

| DATE | STEAM PRESSURE | STEAM PRODUCED | | | | FEED WATER TO BOILER | FUEL USED LB. M C.F. GAL. | EVAP. LB. PER UNIT | OUTSIDE TEMP. AV. | FEEDWATER HEATER | | | %CO2 | | | FLUE GAS TEMPERATURE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | BOILER 1 | BOILER 2 | BOILER 3 | TOTAL | | | | | PRESS. | TEMP. | MAKEUP GAL | BOILER 1 | BOILER 2 | BOILER 3 | BOILER 1 | BOILER 2 | BOILER 3 |
| | LB | 1,000 LB | 1,000 LB | 1,000 LB | 1,000 LB. | 1,000 LB. | | | °F. | LB. | °F. | | | | | °F. | °F. | °F. |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| 1 | 85.66 | | 313,000 | 1454,000 | 313,000 | 11090 | 2390 | 11.0 | | 2.5 | 212 | 5000 | | | | | 436 | |
| 2 | 85. | | 314,000 | | 314,000 | | 2400 | 11.0 | | 2.5 | 212 | 6000 | | | | | 444 | |
| 3 (2 23) | 84.41 | | 296,000 | | 296,000 | | 2260 | 11.0 | | 2.5 | 212 | 5200 | | | | | 436 | |
| 4 | 86.75 | | 268,000 | | 268,000 | | 2030 | 11.1 | | 2.5 | 212 | 4500 | 24300 | | | | 423 | |
| 5 | 85.83 | | 263,000 | | 263,000 | | 2010 | 11.0 | | 2.5 | 212 | 3800 | | | | | 427 | |
| 6 | 85.66 | | 263,000 | 1,2[illegible],000 | 263,000 | | 1990 | 11.1 | | 2.5 | 212 | 5000 | | | | | 422 | |
| 7 | 84. | | 232,000 | | 232,000 | | 1220 | 11.0 | | 2.5 | 212 | 6000 | | | | | 418 | |
| 8 (34 21) | 84.83 | | 221,000 | | 221,000 | 9440 | 1690 | 11.0 | | 2.5 | 212 | 3000 | | | | | 425 | |
| 9 | 84.33 | | 292,000 | | 292,000 | | 2230 | 11.0 | | 2.5 | 212 | 6000 | 25200 | | | | 432 | |
| 10 | 85.66 | | 230,000 | | 230,000 | | 1760 | 11.0 | | 2.5 | 212 | 5200 | | | | | 418 | |
| 11 | 84.41 | | 254,000 | 1,229,000 | 254,000 | | 1940 | 11.0 | | 2.5 | 212 | 5000 | | | | | 422 | |
| 12 | 85.75 | | 289,000 | | 289,000 | | 2120 | 11.1 | | 2.5 | 212 | 5000 | | | | | 438 | |
| 13 (29) | 84.33 | | 244,000 | | 244,000 | 9330 | 1860 | 11.0 | | 2.5 | 212 | 3200 | | | | | 423 | |
| 14 | 87. | | 221,000 | | 221,000 | | 1670 | 11.1 | | 2.5 | 212 | 4900 | 23100 | | | | 418 | |
| 15 | 83. | | 230,000 | | 230,000 | | 1740 | 11.1 | | 2.5 | 212 | 5000 | | | | | 412 | |
| 16 | 83.[illegible] | | 259,000 | 1,392,000 | 259,000 | | 1960 | 11.1 | | 2.5 | 212 | 6000 | | | | | 433 | |
| 17 | 83.91 | | 289,000 | | 289,000 | | 2190 | 11.1 | | 2.5 | 212 | 4500 | | | | | 434 | |
| 18 (34 28) | 83.58 | | 301,000 | | 301,000 | 10,560 | 2280 | 11.1 | | 2.5 | 212 | 4100 | | | | | 429 | |
| 19 | 84. | | 276,000 | | 276,000 | | 2110 | 11.0 | | 2.5 | 212 | 4600 | 24200 | | | | 430 | |
| 20 | 87.41 | | 267,000 | | 267,000 | | 2020 | 11.1 | | 2.5 | 212 | 5000 | | | | | 428 | |
| 21 | 87.70 | | 263,000 | 1056,000 | 263,000 | | 2010 | 11.0 | | 2.5 | 212 | 5200 | | | | | 421 | |
| 22 | 85.45 | | 220,000 | | 220,000 | | 1680 | 11.0 | | 2.5 | 212 | 6000 | | | | | 412 | |
| 23 (7 68) | 89. | | 185,000 | | 185,000 | 8070 | 1490 | 11.0 | | 2.5 | 212 | 5000 | | | | | 423 | |
| 24 | 88.75 | | 178,000 | | 178,000 | | 1360 | 11.0 | | 2.5 | 212 | 4200 | 24400 | | | | 422 | |
| 25 | 82.5 | | 200,000 | | 200,000 | | 1530 | 11.0 | | 2.5 | 212 | 4200 | | | | | 402 | |
| 26 | 88.91 | | 224,000 | 1,101,000 | 224,000 | | 1710 | 11.0 | | 2.5 | 212 | 3500 | | | | | 424 | |
| 27 | 86. | | 211,000 | | 211,000 | | 1610 | 11.0 | | 2.5 | 212 | 4000 | | | | | 427 | |
| 28 (84) | 88. | | 207,000 | | 207,000 | 8380 | 1570 | 11.0 | | 2.5 | 212 | 4000 | 25500 | | | | 423 | |
| 29 | 88. | | 229,000 | | 229,000 | | 1230 | 11.1 | | 2.5 | 212 | 5000 | | | | | 427 | |
| 30 | 88.33 | | 230,000 | | 230,000 | | 1260 | 11.0 | | 2.5 | 212 | 5000 | | | | | 425 | |
| 31 | 89.58 | | 217,000 | | 217,000 | | 1640 | 11.0 | | 2.5 | 212 | 5100 | | | | | 423 | |
| TOTAL | | | 7,687,000 | | | 58,530 | | 11.0 | | | | 147,300 | | | | | | |
| MAXIMUM | | | | | | | | | | | | | | | | | | |
| MINIMUM | | | | | | | | | | | | | | | | | | |
| AVERAGE | 86.38 | | | | | | | | | | | | | | | | | |

EVAPORATION LB. STEAM PER LB STD. FUEL

7,687,000 LBS

SEE REVERSE SIDE FOR INSTRUCTIONS

FUEL USED DURING MONTH (STANDARD TONS)

58,530 GAL

REMARKS

#2 Boiler 31 Days

PREPARED BY: Kevin J. McKinney

DATE: 4/1/94

APPROVED BY: March-1994

DATE

DA FORM 3967, 1 NOV 72 REPLACES DA FORM 598, 1 JUN 58, WHICH WILL BE USED

# FACILITIES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420-49, the proponent agency is the Corps of Engineers.

INSTALLATION: Ft. Monmouth | PLANT: A.J. Myer Ctr | BLDG NO: 27?

| DATE | STEAM PRESSURE LB. (1) | STEAM PRODUCED BOILER 1 1,000 LB. (2) | BOILER 2 1,000 LB. (3) | BOILER 3 1,000 LB. (4) | TOTAL 1,000 LB. (5) | FEED-WATER TO BOILER 1,000 LB. (6) | FUEL USED LB. M.C.F. GAL. (7) | EVAP. LB. PER UNIT (8) | OUTSIDE TEMP. AV. °F. (9) | FEEDWATER HEATER PRESS. LB. (10) | FEEDWATER HEATER TEMP. °F. (11) | MAKEUP GAL. (12) | %CO2 BOILER 1 (13) | %CO2 BOILER 2 (14) | %CO2 BOILER 3 (15) | FLUE GAS TEMPERATURE BOILER 1 °F. (16) | BOILER 2 °F. (17) | BOILER 3 °F. (18) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 88.58 | 10/ | 194,000 | | 194,000 | | 1480 | 11.0 | 52.5 | 2.5 | 212 | 3500 | | | | | | |
| 2 | 87.66 | 17 | 221,000 | | 221,000 | | 1690 | 11.0 | 47.0 | 2.5 | 212 | 5200 | | | | | 401 | |
| 3 (33 141) | 81.83 | 10 | 182,000 | | 182,000 | 7740 | 1380 | 11.1 | 55.25 | 2.5 | 212 | 3000 | | | | | 402 | |
| 4 | 85.83 | 00 | 206,000 | | 206,000 | | 1570 | 11.0 | 53.0 | 2.5 | 212 | 2000 | 17,700 | | | | 400 | |
| 5 | 85.00 | | 214,000 | | 214,000 | | 1620 | 11.1 | 49.73 | 2.5 | 212 | 4000 | | | | | 402 | |
| 6 | 85.33 | | 194,000 | | 194,000 | | 1470 | 11.1 | 52.66 | 2.5 | 212 | 4000 | | | | | 403 | |
| 7 | 86.41 | 9/ | 192,000 | | 192,000 | | 1490 | 11.1 | 53.16 | 2.5 | 212 | 4000 | | | | | [illegible] | |
| 8 (32 51) | 87.08 | 31 | 194,000 | | 194,000 | 7450 | 1410 | 11.1 | 49.08 | 2.5 | 212 | 4000 | | | | | 400 | |
| 9 | 85.83 | /00 | 215,000 | | 215,000 | | 1640 | 11.0 | 48.66 | 2.5 | 212 | 3000 | 19,000 | | | | 400 | |
| 10 | 85.– | | 181,000 | | 181,000 | | 1380 | 11.0 | 60.– | 2.5 | 212 | 5000 | | | | | 401 | |
| 11 | 88.41 | | 198,000 | | 198,000 | | 1500 | 11.1 | 56.– | 2.5 | 212 | 3000 | | | | | 402 | |
| 12 | 87.41 | | 215,000 | | 215,000 | | 1640 | 11.0 | 50 | 2.5 | 212 | 3000 | | | | | 402 | |
| 13 (33 152) | 87.66 | | 195,000 | | 195,000 | 7290 | 1490 | 11.0 | 52 | 2.5 | 212 | 4000 | | | | | 407 | |
| 14 | 88.5 | | | 178,000 | 178,000 | | 1360 | 11.0 | 63 | 2.5 | 212 | 4000 | 18,200 | | | | 402 | |
| 15 | 85.– | 856,000 | | 170,000 | 170,000 | | 1300 | 11.0 | 66 | 2.5 | 212 | 4200 | | | | | – | 330 |
| 16 | 88.41 | | | 177,000 | 177,000 | | 1340 | 11.0 | 66 | 2.5 | 212 | 3000 | | | | | | 343 |
| 17 | 87.– | | | 173,000 | 173,000 | | 1340 | 11.1 | 63 | 2.5 | 212 | 5500 | | | | | | 338 |
| 18 (38 136) | 89.41 | 852,000 | | 181,000 | 181,000 | 6490 | 1310 | 11.1 | 59 | 2.5 | 212 | 4500 | | | | | | 335 |
| 19 | 92.66 | | | 152,000 | 152,000 | | 1370 | 11.1 | 59 | 2.5 | 212 | 3500 | 21,900 | | | | | 333 |
| 20 | 86.33 | | | 169,000 | 169,000 | | 1190 | 11.1 | 71 | 2.5 | 212 | 5100 | | | | | | 331 |
| 21 | 83.33 | | | 173,000 | 173,000 | | 1280 | 11.1 | 63 | 2.5 | 212 | 3000 | | | | | | 332 |
| 22 | 83.75 | | | 173,000 | 173,000 | | 1310 | 11.1 | 57 | 2.5 | 212 | 3800 | | | | | | 332 |
| 23 (38 154) | 87.33 | 856,000 | | 182,000 | 182,000 | 6520 | 1360 | 11.0 | 56 | 2.5 | 212 | 3000 | | | | | | 332 |
| 24 | 72.– | | | 162,000 | 162,000 | | 1410 | 11.1 | 53 | 2.5 | 212 | 2800 | 17,200 | | | | | 332 |
| 25 | 88.33 | | | 152,000 | 152,000 | | 1240 | 11.0 | 63 | 2.5 | 212 | 3800 | | | | | | 330 |
| 26 | 88.– | | | 181,000 | 181,000 | | 1200 | 11.0 | 68 | 2.5 | 212 | 2800 | | | | | | 335 |
| 27 | 90.5 | | | 149,000 | 149,000 | | 1370 | 11.1 | 56 | 2.5 | 212 | 3300 | | | | | | 332 |
| 28 (38 79) | 88.75 | 813,000 | | 148,000 | 148,000 | 6190 | 1140 | 11.0 | 70 | 2.5 | 212 | 4000 | | | | | | 327 |
| 29 | 84.91 | | | 178,000 | 178,000 | | 1130 | 11.0 | 70 | 2.5 | 212 | 3300 | 23,400 | | | | | 324 |
| 30 | 88.83 | | | 157,100 | 157,000 | | 1340 | 11.0 | 58 | 2.5 | 212 | 5100 | | | | | | 334 |
| 31 | | | | | | | 1190 | 11.1 | 65 | 2.5 | 212 | 3000 | | | | | | 335 |
| TOTAL | 88.20 | 5,180,000 | | | | 41,650 | | 11.1 | | | | 116,100 | | | | | | |
| MAXIMUM | | | | | | | | | | | | | | | | | | |
| MINIMUM | | | | | | | | | | | | | | | | | | |
| AVERAGE | | | | | | | | | | | | | | | | | | |

EVAPORATION LB. STEAM PER LB. STD. FUEL

FUEL USED DURING MONTH (STANDARD TONS)

REMARKS: #2 Boiler 13 Days

SEE REVERSE SIDE FOR INSTRUCTIONS

PREPARED BY | DATE | APPROVED BY | DATE

APRIL-1994

DA FORM 3967, 1 NOV 72 — REPLACES DA FORM 5-58, 1 JUN 68, WHICH WILL BE USED.

FAC. .TIES ENGINEERING OPERATING LOG *(Boiler Plant)*

For use of this form, see AR 420-49, the proponent agency is the Corps of Engineers.

| ..LLATION | PLANT | BLDG NO |
|---|---|---|
| FT. Monmouth | A.J. Myer CTR | 22 |

| DATE | STEAM PRESSURE LB (1) | STEAM PRODUCED BOILER 1 1,000 LB (2) | BOILER 2 1,000 LB (3) | BOILER 3 1,000 LB (4) | TOTAL 1,000 LB (5) | FEED-WATER TO BOILER 1,000 LB (6) | FUEL USED LB. M.C.F. GAL. (7) | EVAP. LB. PER UNIT (8) | OUTSIDE TEMP. AV. °F (9) | FEEDWATER HEATER PRESS. LB (10) | FEEDWATER HEATER TEMP. °F (11) | MAKEUP GAL. (12) | %CO2 BOILER 1 (13) | %CO2 BOILER 2 (14) | %CO2 BOILER 3 (15) | FLUE GAS TEMPERATURE BOILER 1 °F (16) | BOILER 2 °F (17) | BOILER 3 °F (18) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 86.66 | | | 156,000 | 156,000 | | 1180 | 11.1 | 65 | 2.5 | 212 | 2500 | | | | | | 332 |
| 2 | 88.91 | | | 190,000 | 190,000 | | 1450 | 11.0 | 58 | 2.5 | 212 | 4000 | | | | | | 340 |
| 37 3 | 86.83 | 881, | 000 | 186,000 | 186,000 | 6220 | 1420 | 11.0 | 53 | 2.5 | 212 | 4000 | 18,200 | | | | | 340 |
| 4 | 85.66 | | | 187,000 | 187,000 | | 1430 | 11.0 | 56 | 2.5 | 212 | 3900 | | | | | | 339 |
| 5 | 87.5 | | | 162,000 | 162,000 | | 1240 | 11.0 | 61 | 2.5 | 212 | 3800 | | | | | | 333 |
| 6 | 89.33 | | | 165,000 | 165,000 | | 1260 | 11.0 | 62 | 2.5 | 212 | 2800 | | | | | | 331 |
| 7 | 89.— | | | 184,000 | 184,000 | | 1410 | 11.1 | 55 | 2.5 | 212 | 5000 | | | | | | 335 |
| 38 39 | 86.33 | 838, | 000 | 161,000 | 161,000 | 6380 | 1230 | 11.0 | 60 | 2.5 | 212 | 4000 | 29,800 | | | | | 335 |
| 9 | 89.— | | | 169,000 | 169,000 | | 1280 | 11.1 | 64 | 2.5 | 212 | 4000 | | | | | | 338 |
| 10 | 88.33 | | | 157,000 | 157,000 | | 1200 | 11.0 | 65 | 2.5 | 212 | 5000 | | | | | | 330 |
| 11 | 85.75 | | | 173,000 | 173,000 | | 1310 | 11.1 | 63 | 2.5 | 212 | 5000 | | | | | | 334 |
| 12 | 87.5 | | | 153,000 | 153,000 | | 1170 | 11.0 | 63 | 2.5 | 212 | 4100 | | | | | | 333 |
| 37 13 | 87.58 | 817, | 000 | 170,000 | 170,000 | 6210 | 1300 | 11.0 | 59 | 2.5 | 212 | 4000 | 29,700 | | | | | 334 |
| 14 | 85.66 | | | 165,000 | 165,000 | | 1250 | 11.1 | 61 | 2.5 | 212 | 4000 | | | | | | 330 |
| 15 | 89.75 | | | 156,000 | 156,000 | | 1180 | 11.1 | 65 | 2.5 | 212 | 4000 | | | | | | 330 |
| 16 | 90.91 | | | 148,000 | 148,000 | | 1130 | 11.0 | 68 | 2.5 | 212 | 5600 | | | | | | 330 |
| 17 | 84.33 | | | 173,000 | 173,000 | | 1310 | 11.1 | 57 | 2.5 | 212 | 4000 | | | | | | 334 |
| 37 18 33 | 87.— | 827, | 000 | 165,000 | 165,000 | 6300 | 1260 | 11.0 | 59 | 2.5 | 212 | 4000 | 33,200 | | | | | 332 |
| 19 | 88.25 | | | 160,000 | 169,000 | | 1220 | 11.0 | 54 | 2.5 | 212 | 5000 | | | | | | 335 |
| 20 | 88.66 | | | 181,000 | 181,100 | | 1380 | 11.0 | 54 | 2.5 | 212 | 5500 | | | | | | 332 |
| 3 21 | 92.— | | | 177,000 | 177,000 | | 1340 | 11.1 | 60 | 2.5 | 212 | 5200 | | | | | | 335 |
| 22 | 88.91 | | | 174,000 | 174,000 | | 1330 | 11.0 | 65 | 2.5 | 212 | 5500 | | | | | | 336 |
| 35 23 44 | 89.33 | 789, | 000 | 157,000 | 157,000 | 5930 | 1200 | 11.0 | 70 | 2.5 | 212 | 5200 | 26,200 | | | | | 345 |
| 24 | 91.66 | | | 134,000 | 134,000 | | 1030 | 11.1 | 75 | 2.5 | 212 | 5000 | | | | | | 331 |
| 25 | 85.33 | | | 136,000 | 136,000 | | 1030 | 11.1 | 74 | 2.5 | 212 | 5000 | | | | | | 329 |
| 26 | 86.33 | | | 136,000 | 136,000 | | 1040 | 11.0 | 70 | 2.5 | 212 | 4900 | | | | | | 342 |
| 27 | 85.— | | | 144,000 | 144,000 | | 1090 | 11.1 | 66 | 2.5 | 212 | 5500 | | | | | | 334 |
| 36 28 | 88.66 | 862, | 000 | 144,000 | 144,000 | 6520 | 1100 | 11.0 | 62 | 2.5 | 212 | 3700 | 29,2.. | | | | | 332 |
| 29 | 85.33 | | | 149,000 | 149,000 | | 1140 | 11.0 | 68 | 2.5 | 212 | 5000 | | | | | | 347 |
| 30 | 87.41 | | | 145,000 | 145,000 | | 1110 | 11.0 | 73 | 2.5 | 212 | 5000 | | | | | | 342 |
| 31 | 85.66 | | | 144,000 | 144,000 | | 1090 | 11.0 | 73 | 2.5 | 212 | 5000 | | | | | | 345 |
| TOTAL | | 5,00 | 5,000 | | | 38,110 | | 11.0 | | | | 138, | 730 | | | | | |
| MAXIMUM | | | | | | | | | | | | | | | | | | |
| MINIMUM | | | | | | | | | | | | | | | | | | |
| AVERAGE | 87.44 | | | | | | | | | | | | | | | | | |

EVAPORATION LB STEAM PER LB. STD. FUEL

FUEL USED DURING MONTH (STANDARD TONS)

REMARKS #3 Boiler 31 Days

SEE REVERSE SIDE FOR INSTRUCTIONS

PREPARED BY

DATE

APPROVED BY MAY-1994

DATE

DA FORM 3967 1 NOV 72 REPLACES DA FORM 5-98 1 JUN 58, WHICH WILL BE USED.

F… …ITIES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420-49, the proponent agency is the Corps of Engineers.

INSTALLATION: Ft. Monmouth | PLANT: A.J. Myer Ctr. | BLDG: 2

| DATE | STEAM PRESSURE LB (1) | STEAM PRODUCED BOILER 1 1,000 LB (2) | BOILER 2 1,000 LB (3) | BOILER 3 1,000 LB (4) | TOTAL 1,000 LB (5) | FEEDWATER TO BOILER 1,000 LB (6) | FUEL USED LB. M.C.F. GAL. (7) | EVAP. LB. PER UNIT (8) | OUTSIDE TEMP. AV. °F (9) | FEEDWATER HEATER PRESS. LB (10) | FEEDWATER HEATER TEMP. °F (11) | MAKEUP GAL. (12) | %CO2 BOILER 1 (13) | %CO2 BOILER 2 (14) | %CO2 BOILER 3 (15) | FLUE GAS TEMPERATURE BOILER 1 °F (16) | BOILER 2 °F (17) | BOILER 3 °F (18) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 87.91 | | | 132,000 | 132,000 | | 1010 | 11.0 | 78 | 2.5 | 212 | 5000 | | | | | | 330 |
| 2 | 86.— | | | 141,000 | 141,000 | | 1080 | 11.0 | 70 | 2.5 | 212 | 4700 | | | | | | 342 |
| 87 3 | 87.25 | 704,000 | | 145,000 | 145,000 | 5390 | 1110 | 11.0 | 68 | 2.5 | 212 | 4100 | 24,000 | | | | | 344 |
| 4 | 86 | | | 141,000 | 141,000 | | 1080 | 11.0 | 72 | 2.5 | 212 | 5000 | | | | | | 335 |
| 5 | 87.83 | | | 145,000 | 145,000 | | 1110 | 11.0 | 71 | 2.5 | 212 | 5200 | | | | | | 342 |
| 6 | 89.91 | | | 140,000 | 140,000 | | 1060 | 11.1 | 73 | 2.5 | 212 | 4800 | | | | | | 343 |
| 7 | 89.33 | | | 135,000 | 135,000 | | 1020 | 11.1 | 80 | 2.5 | 212 | 5300 | | | | | | 345 |
| 87.93 8 | 84.— | 687,000 | | 132,000 | 132,000 | 5210 | 1010 | 11.0 | 74 | 2.5 | 212 | 5200 | 23700 | | | | | 342 |
| 9 | 88.41 | | | 140,000 | 140,000 | | 1060 | 11.1 | 71 | 2.5 | 212 | 3800 | | | | | | 338 |
| 10 | 88.— | | | 140,000 | 140,000 | | 1060 | 11.1 | 73 | 2.5 | 212 | 4400 | | | | | | 342 |
| 11 | 88.— | | | 135,000 | 135,000 | | 1030 | 11.0 | 70 | 2.5 | 212 | 4100 | | | | | | 338 |
| 12 | 88.25 | | | 136,000 | 136,000 | | 1040 | 11.0 | 75 | 2.5 | 212 | 4300 | | | | | | 341 |
| 13 | 89.— | 641,000 | | 136,000 | 136,000 | 4890 | 1040 | 11.0 | 79 | 2.5 | 212 | 5000 | 23800 | | | | | 353 |
| 14 | 89.58 | | | 127,000 | 127,000 | | 960 | 11.1 | 82 | 2.5 | 212 | 5300 | | | | | | 345 |
| 15 | 86.58 | | | 107,000 | 107,000 | | 820 | 11.0 | 83 | 2.5 | 212 | 5100 | | | | | | 322 |
| 16 | 89.— | | | 118,000 | 118,000 | | 890 | 11.1 | 72 | 2.5 | 212 | 4400 | | | | | | 336 |
| 17 | 89.— | | | 120,000 | 120,000 | | 920 | 11.0 | 77 | 2.5 | 212 | 4600 | | | | | | 332 |
| 18 | 86.25 | 584,000 | | 118,000 | 118,000 | 4450 | 900 | 11.0 | 83 | 2.5 | 212 | 4800 | 23820 | | | | | 339 |
| 19 | 85.41 | | | 110,000 | 110,000 | | 840 | 11.0 | 89 | 2.5 | 212 | 4000 | | | | | | 333 |
| 20 | 90.91 | | | 118,000 | 118,000 | | 900 | 11.0 | 80 | 2.5 | 212 | 5000 | | | | | | 336 |
| 21 | 92.58 | | | 124,000 | 124,000 | | 950 | 11.0 | 74 | 2.5 | 212 | 5500 | | | | | | 340 |
| 22 | 83.25 | | | 122,000 | 122,000 | | 930 | 11.0 | 81 | 2.5 | 212 | 5200 | | | | | | 333 |
| 23 | 88.25 | 662,000 | | 120,000 | 120,000 | 4680 | 920 | 11.0 | 85 | 2.5 | 212 | 3600 | 22800 | | | | | 340 |
| 24 | 88.83 | | | 126,000 | 126,000 | | 960 | 11.0 | 80 | 2.5 | 212 | 3900 | | | | | | 342 |
| 25 | 87.— | | | 120,000 | 120,000 | | 920 | 11.0 | 84 | 2.5 | 212 | 4100 | | | | | | 348 |
| 26 | 90.58 | | | 128,000 | 128,000 | | 980 | 11.0 | 77 | 2.5 | 212 | 5100 | ? | | | | | 325 |
| 27 | 87.33 | | | 126,000 | 126,000 | | 960 | 11.0 | 78 | 2.5 | 212 | 6800 | ? | | | | | 320 |
| 28 | 89.— | 646,000 | | 135,000 | 135,000 | 4930 | 1030 | 11.0 | 79 | 2.5 | 212 | 3700 | 25400 | | | | | 320 |
| 29 | 86.5 | | | 123,000 | 123,000 | | 940 | 11.0 | 78 | 2.5 | 212 | 5100 | ? | | | | | 334 |
| 30 | 88.91 | | | 134,000 | 134,000 | | 1020 | 11.0 | 75 | 2.5 | 212 | 4700 | | | | | | 383 |
| 31 | | | | | | | | | | | | | | | | | | |
| TOTAL | | 3,874,000 | | | | 29,540 | | 11.0 | | | | | 142,200 | | | | | |
| MAXIMUM | | | | | | | | | | | | | | | | | | |
| MINIMUM | | | | | | | | | | | | | | | | | | |
| AVERAGE | | | | | | | | | | | | | | | | | | |

EVAPORATION LB. STEAM PER LB. STD. FUEL

SEE REVERSE SIDE FOR INSTRUCTIONS

FUEL USED DURING MONTH (STANDARD TONS)

PREPARED BY | DATE

REMARKS: #3 Boiler 27 Days #2 …

APPROVED BY | DATE

June-1994

DA FORM 3967, 1 NOV 72 REPLACES DA FORM 5 98, 1 JUN 68, WHICH WILL BE USED.

# FACILITIES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420-49, the proponent agency is the Corps of Engineers.

INSTALLATION: FT. Monmouth

PLANT: R.J. MYER CTR

BLDG: 2?

| DATE | STEAM PRESSURE LB (1) | STEAM PRODUCED BOILER 1 1,000 LB (2) | BOILER 2 1,000 LB (3) | BOILER 3 1,000 LB (4) | TOTAL 1,000 LB (5) | FEED WATER TO BOILER 1,000 LB (6) | FUEL USED LB. M C.F. GAL. (7) | EVAP. LB. PER UNIT (8) | OUTSIDE TEMP. AV. °F (9) | FEEDWATER HEATER PRESS. LB (10) | FEEDWATER HEATER TEMP. °F (11) | MAKEUP GAL. (12) | %CO2 BOILER 1 (13) | %CO2 BOILER 2 (14) | %CO2 BOILER 3 (15) | FLUE GAS TEMPERATURE BOILER 1 °F (16) | BOILER 2 °F (17) | BOILER 3 °F (18) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 88.75 | | 135,000 | 665,000 | 135,000 | | 1030 | 11.0 | 78 | 2.5 | 212 | 2700 | | | | | 339 | |
| 2 | 88.75 | | 128,000 | | 128,000 | | 980 | 11.0 | 83 | 2.5 | 212 | 3500 | | | | | 380 | |
| 88.31 3 | 87.5 | | 131,000 | | 131,000 | 5070 | 990 | 11.1 | 81 | 2.5 | 212 | 3300 | 17500 | | | | 388 | |
| 4 | 88.0 | | 131,000 | | 131,000 | | 1000 | 11.0 | 78 | 2.5 | 212 | 4000 | | | | | 387 | |
| 5 | 88.58 | | 140,000 | | 140,000 | | 1070 | 11.0 | 80 | 2.5 | 212 | 4000 | | | | | 373 | |
| 6 | 86.2 | | 123,000 | 623,000 | 123,000 | | 940 | 11.0 | 86 | 2.5 | 212 | 4000 | | | | | 352 | |
| 7 | 86.2 | | 127,000 | | 127,000 | | 920 | 11.0 | 84 | 2.5 | 212 | 3000 | | | | | 322 | |
| 85.89 8 | 86.66 | | 123,000 | | 123,000 | 4690 | 930 | 11.1 | 87 | 2.5 | 212 | 4200 | 29600 | | | | 322 | |
| 9 | 81.83 | | 123,000 | | 123,000 | | 930 | 11.1 | 85 | 2.5 | 212 | 3500 | | | | | 382 | |
| 10 | 82.5 | | 122,000 | | 122,000 | | 920 | 11.1 | 84 | 2.5 | 212 | 5300 | | | | | 385 | |
| 11 | 84.83 | | 122,000 | 641,000 | 122,000 | | 960 | 11.1 | 79 | 2.5 | 212 | 5200 | | | | | 328 | |
| 12 | 91.0 | | 135,000 | | 135,000 | | 1030 | 11.0 | 78 | 2.5 | 212 | 5600 | | | | | 322 | |
| 86.44 13 | 87.25 | | 124,000 | | 124,000 | 4890 | 950 | 11.0 | 85 | 2.5 | 212 | 6300 | 28000 | | | | 327 | |
| 14 | 85.16 | | 123,000 | | 123,000 | | 940 | 11.0 | 82 | 2.5 | 212 | 5200 | | | | | 351 | |
| 15 | 84.58 | | 132,000 | | 132,000 | | 1010 | 11.0 | 77 | 2.5 | 212 | 5700 | | | | | 355 | |
| 16 | 83.16 | | 123,000 | 631,000 | 123,000 | | 920 | 11.1 | 83 | 2.5 | 212 | 4700 | | | | | 354 | |
| 17 | 82 | | 124,000 | | 124,000 | | 950 | 11.0 | 81 | 2.5 | 212 | 3800 | | | | | 352 | |
| 83.36 18 | 82 | | 127,000 | | 127,000 | 4800 | 920 | 11.0 | 78 | 2.5 | 212 | 4200 | 22222 | | | | 398 | |
| 19 | 87.66 | | 131,000 | | 131,000 | | 990 | 11.1 | 81 | 2.5 | 212 | 5500 | | | | | 395 | |
| 20 | 85 | | 126,000 | | 126,000 | | 960 | 11.0 | 85 | 2.5 | 212 | 4000 | | | | | 392 | |
| 21 | 87.41 | | 131,000 | 653,000 | 131,000 | | 1000 | 11.0 | 86 | 2.5 | 212 | 3800 | | | | | 395 | |
| 22 | 86.66 | | 124,000 | | 124,000 | | 950 | 11.0 | 86 | 2.5 | 212 | 3800 | | | | | 394 | |
| 23 | 85 | | 135,000 | | 135,000 | 4960 | 1020 | 11.1 | 79 | 2.5 | 212 | 2600 | 20,7[illegible] | | | | 390 | |
| 24 | 85.33 | | 131,000 | | 131,000 | | 990 | 11.1 | 81 | 2.5 | 212 | 4000 | | | | | 393 | |
| 25 | 87.75 | | 131,000 | | 131,000 | | 1000 | 11.0 | 80 | 2.5 | 212 | 5200 | | | | | 395 | |
| 26 | 81.33 | | 136,000 | 5[illegible]0,000 | 136,000 | | 1030 | 11.1 | 75 | 2.5 | 212 | 6000 | | | | | 395 | |
| 27 | 83.75 | | 132,000 | | 132,000 | | 1160 | 11.0 | 78 | 2.5 | 212 | 4300 | | | | | 398 | |
| 28 | 85.91 | | 126,000 | | 126,000 | 6130 | 920 | 11.0 | 80 | 2.5 | 212 | 4500 | | | | | 391 | |
| 29 | 87.66 | | 131,000 | | 131,000 | | 990 | 11.1 | 79 | 2.5 | 212 | 3900 | 38,000 | | | | 393 | |
| 30 | 86.91 | | 131,000 | | 131,000 | | 990 | 11.1 | 81 | 2.5 | 212 | 4500 | | | | | 385 | |
| 31 | 85.25 | | 131,000 | | 131,000 | | 990 | 11.1 | 82 | 2.5 | 212 | 4800 | | | | | 395 | |
| TOTAL | | | 4,02 | 0,000 | | 30,5 | 40 | 11.0 | | | | 137, | 200 | | | | | |
| MAXIMUM | | | | | | | | | | | | | | | | | | |
| MINIMUM | | | | | | | | | | | | | | | | | | |
| AVERAGE | | | | | | | | | | | | | | | | | | |

EVAPORATION LB STEAM PER LB. STD. FUEL

FUEL USED DURING MONTH (STANDARD TONS)

REMARKS: #2 Boiler 31 DAYS

SEE REVERSE SIDE FOR INSTRUCTIONS

PREPARED BY

DATE

APPROVED BY July-1994

DATE

DA FORM 3967

FACILITIES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420-49; the proponent agency is the Corps of Engineers.

INSTALLATION: FT. Monmouth

PLANT: A.J. Myer Ctr.

BLDG NO: 2700

| DATE | STEAM PRESSURE LB (1) | STEAM PRODUCED BOILER 1 1,000 LB (2) | BOILER 2 1,000 LB (3) | BOILER 3 1,000 LB (4) | TOTAL 1,000 LB (5) | FEED WATER TO BOILER 1,000 LB (6) | FUEL USED LB. M.C.F. GAL. (7) | EVAP. LB. PER UNIT (8) | OUTSIDE TEMP. AV. °F (9) | FEEDWATER HEATER PRESS. LB. (10) | FEEDWATER HEATER TEMP. °F (11) | MAKEUP GAL. (12) | %CO2 BOILER 1 (13) | %CO2 BOILER 2 (14) | %CO2 BOILER 3 (15) | FLUE GAS TEMPERATURE BOILER 1 °F (16) | BOILER 2 °F (17) | BOILER 3 °F (18) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 83.66 | | 135,000 | 69 | 135,000 | | 1030 | 11.0 | 77 | 2.5 | 212 | 4600 | | | | | 392 | |
| 2 | 85.66 | | 135,000 | /2 | 135,000 | | 1020 | 11.1 | 79 | 2.5 | 212 | 5100 | | | | | 398 | |
| 3 | 84.66 | | 131,000 | 1000 | 131,000 | 5100 | 1000 | 11.0 | 81 | 2.5 | 212 | 3800 | | | | | 394 | |
| 4 | 85.83 | | 136,000 | | 136,000 | | 1030 | 11.1 | 83 | 2.5 | 212 | 3300 | 20000 | | | | 392 | |
| 5 | 85.66 | | 135,000 | | 135,000 | | 1020 | 11.1 | 77 | 2.5 | 212 | 3200 | | | | | 395 | |
| 6 | 83.66 | | 144,000 | 7/7 | 144,000 | | 1100 | 11.0 | 71 | 2.5 | 212 | 3600 | | | | | 385 | |
| 7 | 84.91 | | 145,000 | | 145,000 | | 1110 | 11.0 | 72 | 2.5 | 212 | 3500 | | | | | 407 | |
| 8 | 86.41 | | 144,000 | /1,000 | 144,000 | 5480 | 1100 | 11.0 | 74 | 2.5 | 212 | 3900 | | | | | 401 | |
| 9 | 83.25 | | 144,000 | | 144,000 | | 1100 | 11.0 | 72 | 2.5 | 212 | 3900 | 19800 | | | | 402 | |
| 10 | 86.41 | | 140,000 | | 140,000 | | 1070 | 11.0 | 73 | 2.5 | 212 | 3900 | | | | | 398 | |
| 11 | 85.91 | | 145,000 | | 145,000 | | 1110 | 11.0 | 73 | 2.5 | 212 | 3700 | | | | | 403 | |
| 12 | 87. | | 144,000 | 714 | 144,000 | | 1100 | 11.0 | 74 | 2.5 | 212 | 4000 | | | | | 394 | |
| 13 | 84.66 | | 136,000 | /1000 | 136,000 | 5440 | 1030 | 11.1 | 81 | 2.5 | 212 | 4400 | 18200 | | | | 398 | |
| 14 | 85.66 | | 140,000 | | 140,000 | | 1060 | 11.1 | 80 | 2.5 | 212 | 3400 | | | | | 398 | |
| 15 | 86.41 | | 149,000 | | 149,000 | | 1140 | 11.0 | 69 | 2.5 | 212 | 2200 | | | | | 400 | |
| 16 | 85. | | 152,000 | 710 | 152,000 | | 1150 | 11.1 | 69 | 2.5 | 212 | 5000 | | | | | 405 | |
| 17 | 85. | | 144,000 | | 144,000 | | 1090 | 11.1 | 73 | 2.5 | 212 | 4600 | | | | | 397 | |
| 18 | 83.5 | | 136,000 | /1000 | 136,000 | 5400 | 1040 | 11.0 | 79 | 2.5 | 212 | 3900 | 19500 | | | | 399 | |
| 19 | 86. | | 140,000 | | 140,000 | | 1070 | 11.0 | 72 | 2.5 | 212 | 4000 | | | | | 398 | |
| 20 | 86.33 | | 138,000 | | 138,000 | | 1050 | 11.0 | 81 | 2.5 | 212 | 3500 | | | | | 392 | |
| 21 | 86.66 | | 135,000 | 709 | 135,000 | | 1020 | 11.1 | 80 | 2.5 | 212 | 3100 | | | | | 392 | |
| 22 | 87.5 | | 145,000 | /1,000 | 145,000 | | 1110 | 11.0 | 69 | 2.5 | 212 | 5400 | ? | | | | 400 | |
| 23 | 84.58 | | 144,000 | | 144,000 | 5320 | 1100 | 11.0 | 67 | 2.5 | 212 | 7100 | ? | | | | 400 | |
| 24 | 84. | | 141,000 | | 141,000 | | 1080 | 11.0 | 65 | 2.5 | 212 | 4100 | 23100 | | | | 402 | |
| 25 | 86.5 | | 139,000 | | 139,000 | | 1060 | 11.0 | 70 | 2.5 | 212 | 3400 | | | | | 398 | |
| 26 | 87.66 | | 140,000 | 8 | 140,000 | | 1060 | 11.1 | 75 | 2.5 | 212 | 3800 | | | | | 398 | |
| 27 | 86. | | 135,000 | 31 | 135,000 | | 1020 | 11.1 | 79 | 2.5 | 212 | 2800 | | | | | 399 | |
| 28 | 87.41 | | 128,000 | /2000 | 128,000 | 6320 | 980 | 11.1 | 81 | 2.5 | 212 | 3600 | 23700 | | | | 399 | |
| 29 | 85. | | 136,000 | | 136,000 | | 1030 | 11.1 | 75 | 2.5 | 212 | 4500 | | | | | 402 | |
| 30 | 87.33 | | 148,000 | | 148,000 | | 1130 | 11.0 | 68 | 2.5 | 212 | 5500 | | | | | 405 | |
| 31 | 84. | | 144,000 | | 144,000 | | 1100 | 11.0 | 72 | 2.5 | 212 | 3500 | | | | | 402 | |
| TOTAL | | | 4,3 | 53000 | | 3311 | 0 | 11.0 | | | | 199,200 | | | | | | |
| MAXIMUM | | | | | | | | | | | | | | | | | | |
| MINIMUM | | | | | | | | | | | | | | | | | | |
| AVERAGE | | | | | | | | | | | | | | | | | | |

EVAPORATION LB. STEAM PER LB. STD. FUEL

FUEL USED DURING MONTH (STANDARD TONS)

REMARKS: #2 Boiler 31 Days

SEE REVERSE SIDE FOR INSTRUCTIONS

PREPARED BY

DATE

APPROVED BY: AUGUST-1994

DATE

DA FORM 3967, 1 NOV 72 — REPLACES DA FORM 5-98, 1 JUN 58, WHICH WILL BE USED.

FACILITIES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420-49; the proponent agency is the Corps of Engineers.

INSTALLATION: Ft. Monmouth NJ

PLANT: NJ Myer Ctr

BLDG No.: 2

| DATE | STEAM PRESSURE LB (1) | STEAM PRODUCED BOILER 1 1,000 LB (2) | BOILER 2 1,000 LB (3) | BOILER 3 1,000 LB (4) | TOTAL 1,000 LB (5) | FEED WATER TO BOILER 1,000 LB (6) | FUEL USED LB. M.C.F. GAL. (7) | EVAP. LB. PER UNIT (8) | OUTSIDE TEMP. AV. °F (9) | FEEDWATER HEATER PRESS. LB. (10) | FEEDWATER HEATER TEMP °F (11) | MAKEUP GAL. (12) | % CO2 BOILER 1 (13) | % CO2 BOILER 2 (14) | % CO2 BOILER 3 (15) | FLUE GAS TEMPERATURE BOILER 1 °F (16) | BOILER 2 °F (17) | BOILER 3 °F (18) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 85.91 | | 140,000 | 745,000 | 140,000 | | 1070 | 11.0 | 75 | 2.5 | 212 | 4300 | | | | | 392 | |
| 2 | 86. | | 149,000 | | 149,000 | | 1140 | 11.0 | 69 | 2.5 | 212 | 4000 | | | | | 402 | |
| 85.351 3 | 85.75 | | 152,000 | | 152,000 | 5680 | 1160 | 11.0 | 69 | 2.5 | 212 | 3200 | 17,800 | | | | 406 | |
| 4 | 84.25 | | 152,000 | | 152,000 | | 1150 | 11.1 | 68 | 2.5 | 212 | 3400 | | | | | 402 | |
| 5 | 85.66 | | 152,000 | | 152,000 | | 1160 | 11.0 | 66 | 2.5 | 212 | 3500 | | | | | 406 | |
| 6 | 89.33 | | 148,000 | 727,000 | 148,000 | | 1130 | 11.0 | 66 | 2.5 | 212 | 3400 | | | | | 395 | |
| 7 | 84.83 | | 144,000 | | 144,000 | 5330 | 1090 | 11.1 | 69 | 2.5 | 212 | 3400 | | | | | 387 | |
| 86.46 8 | 86.83 | | 143,000 | | 143,000 | | 1090 | 11.0 | 72 | 2.5 | 212 | 3800 | 17,400 | | | | 391 | |
| 9 | 86.41 | | 144,000 | | 144,000 | | 1100 | 11.0 | 73 | 2.5 | 212 | 3500 | | | | | 393 | |
| 10 | 84.91 | | 148,000 | | 148,000 | | 1120 | 11.1 | 70 | 2.5 | 212 | 3300 | | | | | 393 | |
| 11 | 86.25 | | 152,000 | 729,000 | 152,000 | | 1150 | 11.1 | 64 | 2.5 | 212 | 3600 | | | | | 394 | |
| 12 | 89.33 | | 150,000 | | 150,000 | | 1150 | 11.1 | 65 | 2.5 | 212 | 3900 | | | | | 395 | |
| 87 13 | 88. | | 144,000 | | 144,000 | 5530 | 1100 | 11.0 | 73 | 2.5 | 212 | 5400 | 20,300 | | | | 390 | |
| 14 | 86. | | 141,000 | | 141,000 | | 1080 | 11.0 | 72 | 2.5 | 212 | 3800 | | | | | 385 | |
| 15 | 86. | | 138,000 | | 138,000 | | 1050 | 11.1 | 72 | 2.5 | 212 | 3600 | | | | | 383 | |
| 16 | 86.25 | | 145,000 | 738,000 | 145,000 | | 1110 | 11.0 | 74 | 2.5 | 212 | 3900 | | | | | 388 | |
| 17 | 87.5 | | 140,000 | | 140,000 | | 1070 | 11.0 | 79 | 2.5 | 212 | 3200 | | | | | 378 | |
| 86.52 18 | 84. | | 145,000 | | 145,000 | 5630 | 1110 | 11.0 | 73 | 2.5 | 212 | 3900 | 20,400 | | | | 388 | |
| 19 | 86.58 | | 152,000 | | 152,000 | | 1160 | 11.0 | 66 | 2.5 | 212 | 4600 | | | | | 392 | |
| 20 | 87.5 | | 156,000 | | 156,000 | | 1180 | 11.1 | 63 | 2.5 | 212 | 5800 | | | | | 400 | |
| 21 | 86.5 | | 141,000 | 699,000 | 141,000 | | 1080 | 11.0 | 68 | 2.5 | 212 | 4100 | | | | | 378 | |
| 22 | 86.33 | | 144,000 | | 144,000 | | 1080 | 11.0 | 65 | 2.5 | 212 | 3700 | | | | | 384 | |
| 85.99 23 | 86.83 | | 136,000 | | 136,000 | 5320 | 1040 | 11.0 | 66 | 2.5 | 212 | 3900 | 17,200 | | | | 373 | |
| 24 | 85.33 | | 140,000 | | 140,000 | | 1020 | 11.0 | 62 | 2.5 | 212 | 2900 | | | | | 375 | |
| 25 | 85. | | 139,000 | | 139,000 | | 1050 | 11.1 | 70 | 2.5 | 212 | 3100 | | | | | 378 | |
| 26 | 85. | | 140,000 | 718,000 | 140,000 | | 1060 | 11.1 | 71 | 2.5 | 212 | 3800 | | | | | 380 | |
| 27 | 86.91 | | 140,000 | | 140,000 | | 1070 | 11.0 | 71 | 2.5 | 212 | 6800 | | | | | 391 | |
| 85 28 | 85.58 | | 144,000 | | 144,000 | 5460 | 1090 | 11.1 | 68 | 2.5 | 212 | 5100 | 23,000 | | | | 383 | |
| 29 | 86. | | 144,000 | | 144,000 | | 1090 | 11.1 | 61 | 2.5 | 212 | 3800 | | | | | 378 | |
| 30 | 84.5 | | 150,000 | | 150,000 | | 1150 | 11.0 | 60 | 2.5 | 212 | 3100 | | | | | 349 | |
| 31 | | | | | | | | | | | | | | | | | | |
| TOTAL | 86 | | 4,352,000 | | | 32,950 | | 11.0 | | | | 116,100 | | | | | | |
| MAXIMUM | | | | | | | | | | | | | | | | | | |
| MINIMUM | | | | | | | | | | | | | | | | | | |
| AVERAGE | | | | | | | | | | | | | | | | | | |

EVAPORATION LB. STEAM PER LB. STD. FUEL

FUEL USED DURING MONTH (STANDARD TONS)

REMARKS: #2 Boiler 30 Days

SEE REVERSE SIDE FOR INSTRUCTIONS

PREPARED BY

DATE

APPROVED BY: September-1994

DATE

DA FORM 3967, 1 NOV 72 REPLACES DA FORM 5-98, 1 JUN 68, WHICH WILL BE USED.

## FAC[illegible]TIES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420-49; the proponent agency is the Corps of Engineers.

INSTALLATION: Ft. Monmouth

PLANT: A.J. Myer CTR

BLDG NO: 27[illegible]

| DATE | STEAM PRESSURE LB (1) | STEAM PRODUCED BOILER 1 1,000 LB (2) | STEAM PRODUCED BOILER 2 1,000 LB (3) | STEAM PRODUCED BOILER 3 1,000 LB (4) | TOTAL 1,000 LB (5) | FEED-WATER TO BOILER 1,000 LB (6) | FUEL USED LB M.C.F. GAL. (7) | EVAP. LB. PER UNIT (8) | OUTSIDE TEMP AV. °F. (9) | FEEDWATER HEATER PRESS. LB. (10) | FEEDWATER HEATER TEMP. °F. (11) | MAKEUP GAL. (12) | %CO2 BOILER 1 (13) | %CO2 BOILER 2 (14) | %CO2 BOILER 3 (15) | FLUE GAS TEMPERATURE BOILER 1 °F (16) | FLUE GAS TEMPERATURE BOILER 2 °F (17) | FLUE GAS TEMPERATURE BOILER 3 °F (18) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 86.75 | | 152,000 | 795 | 152,000 | | 1200 | 11.0 | 57 | 2.5 | 212 | 3600 | | | | | 403 | |
| 2 | 84.66 | | 156,000 | | 156,000 | | 1180 | 11.1 | 60 | 2.5 | 212 | 3700 | | | | | 402 | |
| 3 | 86.41 | | 165,000 | [illegible]000 | 165,000 | 6050 | 1260 | 11.0 | 55 | 2.5 | 212 | 2900 | 17100 | | | | 427 | |
| 4 | 89 | | 161,000 | | 161,000 | | 1230 | 11.0 | 54 | 2.5 | 212 | 2800 | | | | | 413 | |
| 5 | 84.5 | | 156,000 | | 156,000 | | 1180 | 11.1 | 54 | 2.5 | 212 | 4100 | | | | | 391 | |
| 6 | 85.25 | | 162,000 | 793,000 | 162,000 | | 1240 | 11.0 | 54 | 2.5 | 212 | 3300 | | | | | 402 | |
| 7 | 86.25 | | 168,000 | | 168,000 | | 1280 | 11.0 | 58 | 2.5 | 212 | 3300 | | | | | 399 | |
| 8 | 86 | | 157,000 | | 157,000 | 6040 | 1200 | 11.0 | 62 | 2.5 | 212 | 3300 | 15,500 | | | | 385 | |
| 9 | 86.33 | | 143,000 | | 143,000 | | 1080 | 11.1 | 68 | 2.5 | 212 | 2800 | | | | | 391 | |
| 10 | 89.25 | | 162,000 | | 162,000 | | 1210 | 11.0 | 61 | 2.5 | 212 | 2800 | | | | | 424 | |
| 11 | 86 | | 162,000 | | 162,000 | | 1240 | 11.0 | 53 | 2.5 | 212 | 3600 | | | | | 442 | |
| 12 | 85 | | 157,000 | 769,000 | 157,000 | | 1190 | 11.1 | 51 | 2.5 | 212 | 3400 | | | | | 402 | |
| 13 | 85.58 | | 153,000 | | 153,000 | 5850 | 1160 | 11.1 | 52 | 2.5 | 212 | 3800 | 17,400 | | | | 399 | |
| 14 | 87.33 | | 148,000 | | 148,000 | | 1120 | 11.1 | 56 | 2.5 | 212 | 3300 | | | | | 395 | |
| 15 | 86.41 | | 149,000 | | 149,000 | | 1130 | 11.0 | 58 | 2.5 | 212 | 3300 | | | | | 395 | |
| 16 | 85.25 | | 149,000 | 723,000 | 149,000 | | 1150 | 11.0 | 54 | 2.5 | 212 | 3300 | | | | | 400 | |
| 17 | 89.25 | | 156,000 | | 156,000 | | 1190 | 11.0 | 54 | 2.5 | 212 | 3200 | | | | | 405 | |
| 18 | 82 | | 143,000 | | 143,000 | 5510 | 1090 | 11.0 | 52 | 2.5 | 212 | 2800 | 17,100 | | | | 419 | |
| 19 | 84.83 | | 139,000 | | 139,000 | | 1050 | 11.1 | 64 | 2.5 | 212 | 4400 | | | | | 392 | |
| 20 | 82.25 | | 136,000 | | 136,000 | | 1040 | 11.0 | 63 | 2.5 | 212 | 3800 | | | | | 399 | |
| 21 | 87 | | 140,000 | 705,000 | 140,000 | | 1020 | 11.0 | 64 | 2.5 | 212 | 3600 | | | | | 399 | |
| 22 | 88 | | 140,000 | | 140,000 | | 1070 | 11.0 | 61 | 2.5 | 212 | 3600 | | | | | 392 | |
| 23 | 86.25 | | 140,000 | | 140,000 | 5400 | 1070 | 11.0 | 61 | 2.5 | 212 | 3300 | 15,600 | | | | 392 | |
| 24 | 85.40 | | 140,000 | | 140,000 | | 1080 | 11.0 | 59 | 2.5 | 212 | 2800 | | | | | 395 | |
| 25 | 82.25 | | 148,000 | | 148,000 | | 1120 | 11.1 | 58 | 2.5 | 212 | 2500 | | | | | 424 | |
| 26 | 85.25 | | 148,000 | 876,000 | 148,000 | | 1130 | 11.0 | 51 | 2.5 | 212 | 3300 | | | | | 391 | |
| 27 | 86.83 | | 152,000 | | 152,000 | | 1160 | 11.0 | 50 | 2.5 | 212 | 3100 | | | | | 398 | |
| 28 | 87 | | 152,000 | | 152,000 | 6720 | 1160 | 11.0 | 50 | 2.5 | 212 | 3600 | 16,500 | | | | 423 | |
| 29 | 87.5 | | 145,000 | | 145,000 | | 1110 | 11.0 | 56 | 2.5 | 212 | 3100 | | | | | 395 | |
| 30 | 86.41 | | 141,000 | | 141,000 | | 1080 | 11.0 | 60 | 2.5 | 212 | 3700 | | | | | 392 | |
| 31 | 82.33 | | 141,000 | | 141,000 | | 1080 | 11.0 | 60 | 2.5 | 212 | 4500 | | | | | 435 | |
| TOTAL | | | | 4,669,000 | | 35,[illegible]70 | | | | | | 10[illegible] | [illegible]200 | | | | | |
| MAXIMUM | | | | | | | | | | | | | | | | | | |
| MINIMUM | | | | | | | | | | | | | | | | | | |
| AVERAGE | | | | | | | | | | | | | | | | | | |

EVAPORATION LB STEAM PER LB. STD FUEL

FUEL USED DURING MONTH (STANDARD TONS)

REMARKS: #2 Boiler 31 DAYS

SEE REVERSE SIDE FOR INSTRUCTIONS

PREPARED BY

DATE

APPROVED BY: OCTOBER-1994

DATE

DA FORM 3967, 1 NOV 72 REPLACES DA FORM 5-58, 1 JUN 58, WHICH WILL BE USED.

FA·  TIES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420-49, the proponent agency is the Corps of Engineers.

INSTALLATION: FT. Monmouth  PLANT: R.J. Myer CTR  BLDG NO: 2?

| DATE | STEAM PRESSURE LB (1) | STEAM PRODUCED BOILER 1 1,000 LB (2) | BOILER 2 1,000 LB (3) | BOILER 3 1,000 LB (4) | TOTAL 1,000 LB (5) | FEED-WATER TO BOILER 1,000 LB (6) | FUEL USED LB. M.C.F. GAL. (7) | EVAP. LB. PER UNIT (8) | OUTSIDE TEMP. AV. °F (9) | FEEDWATER HEATER PRESS. LB (10) | FEEDWATER HEATER TEMP. °F (11) | MAKEUP GAL. (12) | %CO2 BOILER 1 (13) | %CO2 BOILER 2 (14) | %CO2 BOILER 3 (15) | FLUE GAS TEMPERATURE BOILER 1 °F (16) | BOILER 2 °F (17) | BOILER 3 °F (18) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 82.87 | | 140,000 | 7/3 | 142,000 | | 1070 | 11.0 | 63 | 2.5 | 212 | 4500 | | | | | 420 | |
| 2 | 83.66 | | 165,000 | | 165,000 | | 1250 | 11.1 | 53 | 2.5 | 212 | 3100 | | | | | 422 | |
| 36.74 3 | 87.25 | | 169,000 | 100% | 169,000 | 5950 | 1290 | 11.0 | 55 | 2.5 | 212 | 4300 | 19,390 | | | | 426 | |
| 4 | 87.91 | | 153,000 | | 153,000 | | 1120 | 11.0 | 65 | 2.5 | 212 | 3900 | | | | | 397 | |
| 5 | 82.— | | 146,000 | | 146,000 | | 1120 | 11.0 | 66 | 2.5 | 212 | 3500 | | | | | 398 | |
| 6 | 85.75 | | 144,000 | 8/21 | 144,000 | | 1090 | 11.1 | 65 | 2.5 | 212 | 3500 | | | | | 395 | |
| 7 | 87.33 | | 181,000 | | 181,000 | | 1380 | 11.0 | 55 | 2.5 | 212 | 3400 | | | | | 427 | |
| 86.54 8 | 87.75 | | 174,000 | 100% | 174,000 | 6260 | 1330 | 11.0 | 55 | 2.5 | 212 | 3340 | 17,400 | | | | 425 | |
| 9 | 86.— | | 149,000 | | 149,000 | | 1140 | 11.0 | 65 | 2.5 | 212 | 3900 | | | | | 420 | |
| 10 | 85.91 | | 123,000 | | 123,000 | | 1320 | 11.0 | 53 | 2.5 | 212 | 3390 | | | | | 423 | |
| 11 | 86.83 | | 191,000 | 6/ | 191,000 | | 1440 | 11.0 | 47 | 2.5 | 212 | 3700 | | | | | 427 | |
| 12 | 86.66 | | 185,000 | 8 | 185,000 | | 1490 | 11.0 | 47 | 2.5 | 212 | 3500 | | | | | 427 | |
| 86.107 13 | 86.25 | | 169,000 | 6 | 169,000 | 6670 | 1290 | 11.0 | 54 | 2.5 | 212 | 3380 | 14,300 | | | | 414 | |
| 14 | 86.29 | | 170,000 | 100% | 170,000 | | 1300 | 11.0 | 52 | 2.5 | 212 | 2900 | | | | | 423 | |
| 15 | 87.33 | | 164,000 | | 164,000 | | 1230 | 11.0 | 60 | 2.5 | 212 | 2900 | | | | | 422 | |
| 16 | 84.— | | 174,000 | 8/ | 174,000 | | 1330 | 11.0 | 53 | 2.5 | 212 | 3900 | | | | | 420 | |
| 17 | 86.— | | 123,000 | 30 | 123,000 | | 1310 | 11.1 | 54 | 2.5 | 212 | 4200 | | | | | 425 | |
| 85.65 18 | 86.62 | | 169,000 | 100% | 169,000 | 6620 | 1290 | 11.0 | 58 | 2.5 | 212 | 3400 | 15,300 | | | | 420 | |
| 19 | 85.70 | | 135,000 | | 135,000 | | 1260 | 11.1 | 59 | 2.5 | 212 | 3800 | | | | | 422 | |
| 20 | 84.95 | | 187,000 | | 187,000 | | 1430 | 11.0 | 51 | 2.5 | 212 | 3500 | | | | | 438 | |
| 21 | 87.87 | | 165,100 | 10/ | 165,000 | | 1260 | 11.0 | 54 | 2.5 | 212 | 3500 | | | | | 420 | |
| 22 | 85.— | | 182,000 | 12 | 182,000 | | 1390 | 11.0 | 53 | 2.5 | 212 | 3500 | | | | | 449 | |
| 23 | 85.62 | | 217,000 | 100% | 217,000 | 7220 | 1640 | 11.0 | 40 | 2.5 | 212 | 4100 | 18900 | | | | 435 | |
| 24 | 83.— | | 237,000 | | 237,000 | | 1810 | 11.0 | 32 | 2.5 | 212 | 4100 | | | | | 459 | |
| 25 | 81.91 | | 211,000 | | 211,000 | | 1600 | 11.1 | 43 | 2.5 | 212 | 3200 | | | | | 452 | |
| 26 | 86.29 | | 220,000 | 9/ | 220,000 | | 1680 | 11.0 | 43 | 2.5 | 212 | 3700 | | | | | 432 | |
| 27 | 83.29 | | 225,000 | 27 | 225,000 | | 1720 | 11.0 | 39 | 2.5 | 212 | 4500 | | | | | 456 | |
| 28 | 91.5 | | 156,000 | 100% | 156,000 | 7320 | 1190 | 11.0 | 59 | 2.5 | 212 | 3520 | 18,30 | | | | 428 | |
| 29 | 88.45 | | 178,000 | | 178,000 | | 1360 | 11.0 | 53 | 2.5 | 212 | 3200 | | | | | 429 | |
| 30 | 87.5 | | 186,000 | | 186,000 | | 1420 | 11.0 | 49 | 2.5 | 212 | 3400 | | | | | 418 | |
| 31 | | | | | | | | | | | | | | | | | | |
| TOTAL | | | 5,186,000 | | | 40,570 | | | | | | 109,200 | | | | | | |
| MAXIMUM | | | | | | | | | | | | | | | | | | |
| MINIMUM | | | | | | | | | | | | | | | | | | |
| AVERAGE | | | | | | | | | | | | | | | | | | |

EVAPORATION LB. STEAM PER LB. STD. FUEL

SEE REVERSE SIDE FOR INSTRUCTIONS

FUEL USED DURING MONTH (STANDARD TONS)

PREPARED BY

DATE

REMARKS: #2 Boiler 30 Days

APPROVED BY: November-1994

DATE

DA FORM 1 NOV 72 3967 REPLACES DA FORM 5-98, 1 JUN 58, WHICH WILL BE USED.

## FACILITIES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420-49, the proponent agency is the Corps of Engineers.

INSTALLATION: Ft. Monmouth | PLANT: A.S. MYER CTR. | BLDG. NO: 270

| DATE | STEAM PRESSURE LB (1) | STEAM PRODUCED BOILER 1 1,000 LB (2) | BOILER 2 1,000 LB (3) | BOILER 3 1,000 LB (4) | TOTAL 1,000 LB (5) | FEED WATER TO BOILER 1,000 LB (6) | FUEL USED LB M.C.F. GAL. (7) | EVAP. LB. PER UNIT (8) | OUTSIDE TEMP AV. °F (9) | FEEDWATER HEATER PRESS. LB (10) | FEEDWATER HEATER TEMP. °F (11) | MAKEUP GAL. (12) | %CO2 BOILER 1 (13) | %CO2 BOILER 2 (14) | %CO2 BOILER 3 (15) | FLUE GAS TEMPERATURE BOILER 1 °F (16) | FLUE GAS TEMPERATURE BOILER 2 °F (17) | FLUE GAS TEMPERATURE BOILER 3 °F (18) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 86.91 | | 199,000 | 80 | 199,000 | | 1520 | 11.0 | 41 | 2.5 | 212 | 3500 | | | | | 439 | |
| 2 | 99.5 | | 185,000 | 80 | 185,000 | | 1490 | 11.0 | 44 | 2.5 | 212 | 3900 | | | | | 414 | |
| 3 (89.66) | 89.75 | | 122,000 | 200 | 122,000 | 6230 | 1340 | 11.1 | 51 | 2.5 | 212 | 3400 | 18600 | | | | 432 | |
| 4 | 89.87 | | 165,000 | | 165,000 | | 1250 | 11.1 | 52 | 2.5 | 212 | 3900 | | | | | 422 | |
| 5 | 92.92 | | 148,000 | | 148,000 | | 1230 | 11.0 | 58 | 2.5 | 212 | 3900 | | | | | 420 | |
| 6 | 90 | | 162,000 | 80 | 162,000 | | 1220 | 11.1 | 60 | 2.5 | 212 | 3200 | | | | | 425 | |
| 7 | 89.25 | | 163,000 | 80 | 163,000 | | 1340 | 11.0 | 56 | 2.5 | 212 | 3200 | | | | | 428 | |
| 8 (85.69) | 82.5 | | 211,000 | 200 | 211,000 | 7110 | 1610 | 11.0 | 39 | 2.5 | 212 | 3600 | 16300 | | | | 439 | |
| 9 | 87.66 | | 235,000 | | 235,000 | | 1590 | 11.0 | 39 | 2.5 | 212 | 3700 | | | | | 431 | |
| 10 | 82.65 | | 199,000 | | 199,000 | | 1450 | 11.0 | 45 | 2.5 | 212 | 3200 | | | | | 428 | |
| 11 | 86.80 | | 191,000 | 116 | 191,000 | | 1460 | 11.0 | 42 | 2.5 | 212 | 3300 | | | | | 428 | |
| 12 | 86.— | | 259,000 | | 259,000 | | 1820 | 11.1 | 31 | 2.5 | 212 | 2900 | | | | | 422 | |
| 13 (86.33) | 87.57 | | 334,000 | 200 | 334,000 | 8490 | 1290 | 11.0 | 36 | 2.5 | 212 | 2900 | 15300 | | | | 452 | |
| 14 | 86.66 | | 221,000 | | 221,000 | | 1670 | 11.1 | 41 | 2.5 | 212 | 2200 | | | | | 432 | |
| 15 | 86.33 | | 229,000 | | 229,000 | | 1680 | 11.0 | 40 | 2.5 | 212 | [illegible] | | | | | 420 | |
| 16 | 86.58 | | 220,000 | 80 | 220,000 | | 1680 | 11.0 | 40 | 2.5 | 212 | 3600 | | | | | 452 | |
| 17 | 87 | | 194,000 | | 194,000 | | 1470 | 11.1 | 42 | 2.5 | 212 | 3100 | | | | | 428 | |
| 18 (86.79) | 86.62 | | 187,000 | 200 | 187,000 | 7850 | 1430 | 11.0 | 45 | 2.5 | 212 | 3200 | 12900 | | | | 418 | |
| 19 | 86.75 | | 204,000 | | 204,000 | | 1540 | 11.0 | 40 | 2.5 | 212 | 3800 | | | | | 443 | |
| 20 | 87 | | 224,000 | | 224,000 | | 1710 | 11.0 | 37 | 2.5 | 212 | 3800 | | | | | 459 | |
| 21 | 86.62 | | 215,000 | 80 | 215,000 | | 1640 | 11.0 | 39 | 2.5 | 213 | 3600 | | | | | 441 | |
| 22 | 87.88 | | 213,000 | | 213,000 | | 1620 | 11.0 | 42 | 2.5 | 212 | 4500 | | | | | 435 | |
| 23 | 86.38 | | 199,000 | 200 | 199,000 | 7280 | 1440 | 11.1 | 48 | 2.5 | 212 | 3500 | 15800 | | | | 425 | |
| 24 | 85.66 | | 211,000 | | 211,000 | | 1610 | 11.0 | 48 | 2.5 | 212 | 3800 | | | | | 426 | |
| 25 | 86.66 | | 194,000 | | 194,000 | | 1420 | 11.1 | 51 | 2.5 | 212 | 3100 | | | | | 423 | |
| 26 | 87.33 | | 224,000 | | 224,000 | | 1710 | 11.0 | 42 | 2.5 | 212 | 3400 | | | | | 442 | |
| 27 | 85.41 | | 225,000 | | 225,000 | | 1720 | 11.0 | 36 | 2.5 | 212 | 3800 | | | | | 445 | |
| 28 (85.71) | 85.66 | | 205,000 | 200 | 205,000 | 10220 | 1590 | 11.0 | 43 | 2.5 | 212 | 4000 | 22100 | | | | 439 | |
| 29 | 86 | | 212,000 | | 212,000 | | 1660 | 11.0 | 40 | 2.5 | 212 | 3700 | | | | | [illegible] | |
| 30 | 86.66 | | 240,000 | | 240,000 | | 1830 | 11.0 | 38 | 2.5 | 212 | 3600 | | | | | [illegible] | |
| 31 | 85.41 | | 230,000 | | 230,000 | | 1760 | 11.0 | 34 | 2.5 | 212 | 3600 | | | | | 428 | |
| TOTAL | | | 6,712,000 | | | 48.3 | 0 | 11.0 | | | | 109,000 | | | | | | |
| MAXIMUM | | | | | | | | | | | | | | | | | | |
| MINIMUM | | | | | | | | | | | | | | | | | | |
| AVERAGE | | | | | | | | | | | | | | | | | | |

EVAPORATION LB STEAM PER LB. STD. FUEL

FUEL USED DURING MONTH (STANDARD TONS)

REMARKS: #2 Boiler 31 Days

SEE REVERSE SIDE FOR INSTRUCTIONS

PREPARED BY | DATE | APPROVED BY December-1994 | DATE

DA FORM 1 NOV 72 3967 REPLACES DA FORM 558, 1 JUN 58, WHICH WILL BE USED.

F 'LITIES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420-49, the proponent agency is the Corps of Engineers.

INSTALLATION: Ft. Monmouth - N.J.

PLANT: R.J. Myer Ctr.

BLDG: 2

| DATE | STEAM PRESSURE LB. (1) | STEAM PRODUCED BOILER 1 1,000 LB. (2) | BOILER 2 1,000 LB. (3) | BOILER 3 1,000 LB. (4) | TOTAL 1,000 LB. (5) | FEED-WATER TO BOILER 1,000 LB. (6) | FUEL USED LB. M.C.F. GAL. (7) | EVAP. LB. PER UNIT (8) | OUTSIDE TEMP. AV. °F. (9) | FEEDWATER HEATER PRESS. LB. (10) | FEEDWATER HEATER TEMP. °F. (11) | MAKEUP GAL. (12) | % CO2 BOILER 1 (13) | % CO2 BOILER 2 (14) | % CO2 BOILER 3 (15) | FLUE GAS TEMPERATURE BOILER 1 °F (16) | BOILER 2 °F (17) | BOILER 3 °F (18) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 86.62 | | 181,000 | | 18,000 | | 1380 | 11.0 | 46 | 2.5 | 212 | 3400 | | | | | 423 | |
| 2 | 85.29 | | 212,000 | 1166 | 212,000 | | 1660 | 11.0 | 37 | 2.5 | 212 | 3200 | | | | | 458 | |
| 85.56 3 | 84.95 | | 234,000 | 2000 | 234,000 | 8890 | 1980 | 11.0 | 22 | 2.5 | 212 | 3100 | | | | | 484 | |
| 4 | 86.45 | | 242,000 | | 242,000 | | 1820 | 11.1 | 29 | 2.5 | 212 | 3100 | 16400 | | | | 462 | |
| 5 | 84.— | | 262,000 | | 262,000 | | 2040 | 11.0 | 19 | 2.5 | 212 | 3200 | | | | | 483 | |
| 6 | 85.53 | | 263,000 | 233 | 263,000 | | 2010 | 11.0 | 26 | 2.5 | 212 | 4400 | | | | | 482 | |
| 7 | 86.45 | | 223,000 | | 223,000 | | 1700 | 11.0 | 44 | 2.5 | 212 | 3100 | | | | | 475 | |
| 85.95 8 | 84.83 | | 242,000 | 2000 | 242,000 | 2370 | 1820 | 11.1 | 35 | 2.5 | 212 | 3300 | 17900 | | | | 479 | |
| 9 | 86.33 | | 246,000 | | 246,000 | | 1880 | 11.0 | 39 | 2.5 | 212 | 3100 | | | | | 512 | |
| 10 | 85.63 | | 253,000 | | 253,000 | | 1910 | 11.1 | 31 | 2.5 | 212 | 4000 | | | | | 508 | |
| 11 | 84.63 | | 230,000 | 904 | 230,000 | | 1760 | 11.0 | 35 | 2.5 | 212 | 2930 | | | | | 475 | |
| 12 | 85.25 | | 192,000 | | 192,000 | 1510 | ~~3800~~ | 11.0 | 45 | 2.5 | 212 | 3800 | | | | | 445 | |
| 87 13 | 85. | | 164,000 | 2001 | 164,000 | | 2260 | 11.1 | 57 | 2.5 | 212 | 3600 | 18100 | | | | 419 | |
| 14 | 88. | | 164,000 | | 164,000 | 6880 | 1230 | 11.1 | 59 | 2.5 | 212 | 4200 | | | | | 419 | |
| 15 | 87.83 | | 152,000 | | 152,000 | | 1150 | 11.1 | 61 | 2.5 | 212 | 3600 | | | | | 412 | |
| 16 | 86.— | | 162,000 | 933 | 162,000 | | 1240 | 11.0 | 52 | 2.5 | 212 | 3400 | | | | | 463 | |
| 17 | 86.66 | | 174,000 | | 174,000 | | 1330 | 11.0 | 57 | 2.5 | 212 | 3000 | | | | | 432 | |
| 85.86 18 | 85.58 | | 194,000 | 2000 | 194,000 | 7120 | 1480 | 11.0 | 42 | 2.5 | 212 | 4100 | 16800 | | | | 443 | |
| 19 | 85.41 | | 222,000 | | 222,000 | | 1540 | 11.0 | 43 | 2.5 | 212 | 3200 | | | | | 452 | |
| 20 | 85.66 | | 203,000 | | 203,000 | | 1530 | 11.0 | 46 | 2.5 | 212 | 3100 | | | | | 457 | |
| 21 | 84.95 | | 203,000 | 1140 | 203,000 | | 1540 | 11.1 | 40 | 2.5 | 212 | 3200 | | | | | 453 | |
| 22 | 85.41 | | 262,000 | | 262,000 | | 1620 | 11.0 | 34 | 2.5 | 212 | 4100 | | | | | 458 | |
| 85.62 23 | 86.25 | | 259,000 | 2000 | 259,000 | 8830 | 1910 | 11.0 | 32 | 2.5 | 212 | 4000 | 19300 | | | | [illegible] | |
| 24 | 85.— | | 258,000 | | 258,000 | | 1970 | 11.0 | 35 | 2.5 | 212 | 4000 | | | | | 519 | |
| 25 | 86.— | | 232,000 | | 232,000 | | 1790 | 11.1 | 38 | 2.5 | 212 | 4000 | | | | | 422 | |
| 26 | 85.66 | | 234,000 | 1460 | 234,000 | | 1790 | 11.0 | 35 | 2.5 | 212 | 4000 | | | | | 472 | |
| 27 | 84.58 | | 241,000 | | 241,000 | | 1840 | 11.0 | 33 | 2.5 | 212 | 4000 | | | | | 502 | |
| 85 28 | 84. | | 250,000 | 2000 | 250,000 | | 1890 | 11.1 | 31 | 2.5 | 212 | 4000 | | | | | 512 | |
| 29 | 86.83 | | 251,000 | | 251,000 | | 1900 | 11.1 | 28 | 2.5 | 212 | 4000 | 23100 | | | | 499 | |
| 30 | 85.29 | | 346,000 | | 346,000 | | 1860 | 11.1 | 33 | 2.5 | 212 | 3700 | | | | | 519 | |
| 31 | 84.91 | | 238,000 | | 238,000 | | 1820 | 11.0 | 35 | 2.5 | 212 | 3400 | | | | | [illegible] | |
| TOTAL | | | 6,8[illegible] | 4,001 | | 52,1 | 20 | 11.0 | | | | | | | | | [illegible] | |
| MAXIMUM | | | | | | | | | | | | | 11,600 | | | | | |
| MINIMUM | | | | | | | | | | | | | | | | | | |
| AVERAGE | 85.31 | | | | | | | | | | | | | | | | | |

EVAPORATION LB. STEAM PER LB. STD. FUEL

FUEL USED DURING MONTH (STANDARD TONS)

REMARKS: January-1995

SEE REVERSE SIDE FOR INSTRUCTIONS

PREPARED BY

DATE

APPROVED BY

DATE

DA FORM 3967, 1 NOV 72 REPLACES DA FORM 5-98, 1 JUN 58, WHICH WILL BE USED.

FA ITIES ENGINEERING OPERATING LOG *(Boiler Plant)*

For use of this form, see AR 420-49, the proponent agency is the Corps of Engineers.

INSTALLATION: FT. Monmouth

PLANT: N.J. Myer CTR

BLDG NO: 27

| DATE | STEAM PRESSURE LB (1) | STEAM PRODUCED BOILER 1 1,000 LB (2) | BOILER 2 1,000 LB (3) | BOILER 3 1,000 LB (4) | TOTAL 1,000 LB (5) | FEED-WATER TO BOILER 1,000 LB (6) | FUEL USED LB. M.C.F. GAL. (7) | EVAP. LB. PER UNIT (8) | OUTSIDE TEMP. AV. °F (9) | FEEDWATER HEATER PRESS. LB (10) | FEEDWATER HEATER TEMP. °F (11) | MAKEUP GAL (12) | %CO2 BOILER 1 (13) | %CO2 BOILER 2 (14) | %CO2 BOILER 3 (15) | FLUE GAS TEMPERATURE BOILER 1 °F (16) | BOILER 2 °F (17) | BOILER 3 °F (18) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 88 | | 209,000 | | 209,000 | | 1590 | 11.0 | 40 | 2.5 | 212 | 3500 | | | | | 480 | |
| 2 | 86 | | 212,000 | [illegible] | 212,000 | | 1660 | 11.0 | 38 | 2.5 | 212 | 3800 | | | | | 487 | |
| 3 | 85.83 | | 255,000 | | 255,000 | 9240 | 1850 | 11.0 | 27 | 2.5 | 212 | 3500 | 12,200 | | | | 541 | |
| 4 | 92.33 | | 250,000 | | 250,000 | | 1890 | 11.1 | 32 | 2.5 | 212 | 3100 | | | | | 526 | |
| 5 | 91.85 | | 254,000 | | 254,000 | | 2150 | 11.1 | 21 | 2.5 | 212 | 3300 | | | | | 520 | |
| 6 | 91.54 | | 284,000 | | 284,000 | | 2120 | 11.0 | 10 | 2.5 | 212 | 4000 | | | | | 606 | |
| 7 | 93.33 | | 323,000 | [illegible] | 323,000 | | 2460 | 11.0 | 19 | 2.5 | 212 | 4000 | | | | | 607 | |
| 8 | 95.33 | | 318,000 | | 318,000 | 11490 | 2410 | 11.1 | 20 | 2.5 | 212 | 3300 | 12500 | | | | 611 | |
| 9 | 94.— | | 314,000 | | 314,000 | | 2400 | 11.0 | 20 | 2.5 | 212 | 3400 | | | | | 601 | |
| 10 | 92.41 | | 271,000 | | 271,000 | | 2050 | 11.1 | 32 | 2.5 | 212 | 3800 | | | | | 566 | |
| 11 | 92.— | | 247,000 | | 247,000 | | 1870 | 11.1 | 39 | 2.5 | 212 | 2800 | | | | | 534 | |
| 12 | 93.— | | 317,000 | [illegible] | 317,000 | | 2410 | 11.0 | 18 | 2.5 | 212 | 3300 | | | | | 601 | |
| 13 | 94.— | | 332,000 | | 332,000 | 11010 | 2460 | 11.0 | 18 | 2.5 | 212 | 3300 | 16,000 | | | | 535 | |
| 14 | 85.58 | | 282,000 | | 282,000 | | 2210 | 11.1 | 26 | 2.5 | 212 | 4100 | | | | | 526 | |
| 15 | [illegible] | | 259,000 | | 259,000 | | 1950 | 11.0 | 28 | 2.5 | 212 | 3500 | | | | | 522 | |
| 16 | 95.41 | | 229,000 | | 229,000 | | 1830 | 11.1 | 40 | 2.5 | 212 | 3200 | | | | | 525 | |
| 17 | 92.25 | | 234,000 | [illegible] | 234,100 | | 1290 | 11.0 | 39 | 2.5 | 212 | 3100 | | | | | 515 | |
| 18 | 94.20 | | 250,000 | | 250,000 | 8910 | 1890 | 11.1 | 38 | 2.5 | 212 | 3300 | 16,200 | | | | 544 | |
| 19 | 92.— | | 237,000 | | 237,000 | | 1810 | 11.0 | 40 | 2.5 | 212 | 3400 | | | | | 533 | |
| 20 | 91.— | | 221,000 | | 221,000 | | 1690 | 11.0 | 43 | 2.5 | 212 | 3000 | | | | | 543 | |
| 21 | 95.41 | | 224,000 | | 224,000 | | 1220 | 11.0 | 41 | 2.5 | 212 | 3200 | | | | | 544 | |
| 22 | 94.25 | | 223,000 | [illegible] | 223,000 | | 1200 | 11.0 | 37 | 2.5 | 212 | 3200 | | | | | 448 | |
| 23 | 97.25 | | 211,000 | | 211,000 | 8700 | 1610 | 11.0 | 40 | 2.5 | 212 | 2800 | 15,600 | | | | 428 | |
| 24 | 91.— | | 229,000 | | 229,000 | | 1230 | 11.1 | 41 | 2.5 | 212 | 3400 | | | | | 506 | |
| 25 | 95.79 | | 255,000 | | 255,000 | | 1950 | 11.0 | 31 | 2.5 | 212 | 3000 | | | | | 523 | |
| 26 | 94.25 | | 265,000 | | 265,000 | | 2030 | 11.0 | 31 | 2.5 | 212 | 3100 | | | | | 560 | |
| 27 | 94.25 | | 292,000 | | 292,000 | | 1900 | 11.0 | 35 | 2.5 | 212 | 3100 | | | | | 564 | |
| 28 | 97.29 | | 215,000 | | 215,000 | 5570 | 1640 | 11.0 | 42 | 2.5 | 212 | 3400 | | | | | 421 | |
| 29 | | | | | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | |
| TOTAL | | | 7,214,000 | | | 59,920 | | 11.0 | | | | 92,100 | | | | | | |
| MAXIMUM | | | | | | | | | | | | | | | | | | |
| MINIMUM | | | | | | | | | | | | | | | | | | |
| AVERAGE | | | | | | | | | | | | | | | | | | |

EVAPORATION LB STEAM PER LB STD FUEL

FUEL USED DURING MONTH (STANDARD TONS)

REMARKS: Febuary-1995

SEE REVERSE SIDE FOR INSTRUCTIONS

PREPARED BY | DATE | APPROVED BY | DATE

DA FORM 3967, 1 NOV 72 REPLACES DA FORM 6-98 1 JUN 68, WHICH WILL BE USED.

# FAC[ILI]TIES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420-43, the proponent agency is the Corps of Engineers.

INSTALLATION: FT. Monmouth

PLANT: [illegible]

BLDG NO: 276

| DATE | STEAM PRESSURE LB (1) | STEAM PRODUCED BOILER 1 1,000 LB (2) | STEAM PRODUCED BOILER 2 1,000 LB (3) | STEAM PRODUCED BOILER 3 1,000 LB (4) | TOTAL 1,000 LB (5) | FEED WATER TO BOILER 1,000 LB (6) | FUEL USED LB. M.C.F. GAL. (7) | EVAP. LB. PER UNIT (8) | OUTSIDE TEMP. AV. °F. (9) | FEEDWATER HEATER PRESS. LB (10) | FEEDWATER HEATER TEMP °F. (11) | FEEDWATER HEATER MAKEUP GAL. (12) | %CO2 BOILER 1 (13) | %CO2 BOILER 2 (14) | %CO2 BOILER 3 (15) | FLUE GAS TEMPERATURE BOILER 1 °F (16) | FLUE GAS TEMPERATURE BOILER 2 °F (17) | FLUE GAS TEMPERATURE BOILER 3 °F (18) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 86.85 | | 223,000 | 4/4 6000 | 223000 | | 1200 | 11.0 | 42 | 2.5 | 212 | 3200 | | | | | 495 | |
| 2 | 86.91 | | 233,000 | | 233,000 | | 1280 | 11.0 | 38 | 2.5 | 212 | 3300 | | | | | 529 | |
| 3 | 87.25 | | 241,000 | | 241,000 | 8250 | 1840 | 11.0 | 32 | 2.5 | 212 | 3500 | 12400 | | | | 538 | |
| 4 | 86.41 | | 239,000 | | 236,000 | | 1260 | 11.0 | 39 | 2.5 | 212 | 3500 | | | | | 529 | |
| 5 | 86.37 | | 219,000 | | 219,000 | | 1670 | 11.0 | 41 | 2.5 | 212 | 3600 | | | | | 515 | |
| 6 | 89.33 | | 213,000 | | 213000 | | 1620 | 11.0 | 46 | 2.5 | 212 | 3200 | | | | | 514 | |
| 7 | 86 | | 199,000 | 1/17 5000 | 199,000 | | 1520 | 11.0 | 48 | 2.5 | 212 | 3600 | | | | | 478 | |
| 8 | 87 | | 183,000 | | 183,000 | 8490 | 1380 | 11.1 | 58 | 2.5 | 212 | 2100 | 14400 | | | | 484 | |
| 9 | 85.66 | | 253,000 | | 253,000 | | 1920 | 11.1 | 32 | 2.5 | 212 | 3600 | | | | | 549 | |
| 10 | 87 | | 221,000 | | 221,000 | | 2050 | 11.1 | 31 | 2.5 | 212 | 3900 | | | | | [illegible] | |
| 11 | 86.95 | | 233,000 | 10/13 1000 | 233,000 | | 1280 | 11.0 | 38 | 2.5 | 212 | 3400 | | | | | 530 | |
| 12 | 87.95 | | 215,000 | | 215,000 | | 1640 | 11.0 | 42 | 2.5 | 212 | 3600 | | | | | 526 | |
| 13 | 89 | | 186,000 | | 186,000 | 7720 | 1410 | 11.1 | 52 | 2.5 | 212 | 3200 | 14200 | | | | 492 | |
| 14 | [illegible] | | 199,000 | | 199,000 | | 1520 | 11.0 | 49 | 2.5 | 212 | 4000 | | | | | 515 | |
| 15 | [illegible] | | 179,000 | | 179,000 | | 1320 | 11.0 | 53 | 2.5 | 212 | 4100 | | | | | 450 | |
| 16 | 89.25 | | 122,000 | 900 | 122,000 | | 1340 | 11.1 | 51 | 2.5 | 212 | 4000 | | | | | 483 | |
| 17 | 88.66 | | 164,000 | | 164,000 | | 1250 | 11.1 | 55 | 2.5 | 212 | 4100 | | | | | 484 | |
| 18 | 88.91 | | 187,000 | 2000 | 187,000 | 6820 | 1410 | 11.1 | 52 | 2.5 | 212 | 4100 | 18200 | | | | 493 | |
| 19 | 86.20 | | 186,000 | | 186,000 | | 1410 | 11.1 | 48 | 2.5 | 212 | 3500 | | | | | 481 | |
| 20 | 90.29 | | 184,000 | | 184,000 | | 1380 | 11.0 | 47 | 2.5 | 212 | 3500 | | | | | 429 | |
| 21 | 88.45 | | 165,000 | 9/21 | 165,000 | | 1360 | 11.1 | 55 | 2.5 | 212 | 3300 | | | | | 458 | |
| 22 | 86 | | 173,000 | | 173,000 | | 1310 | 11.1 | 49 | 2.5 | 212 | 3200 | | | | | 462 | |
| 23 | 88.33 | | 173,000 | 1000 | 173,000 | 6850 | 1320 | 11.0 | 48 | 2.5 | 212 | 2200 | 13600 | | | | 457 | |
| 24 | 88.41 | | 194,000 | | 194,000 | | 1470 | 11.1 | 44 | 2.5 | 212 | 2000 | | | | | 497 | |
| 25 | 88 | | 196,000 | | 196,000 | | 1500 | 11.0 | 46 | 2.5 | 212 | 2900 | | | | | 489 | |
| 26 | 88.33 | | 178,000 | 10/26 | 178,000 | | 1360 | 11.0 | 52 | 2.5 | 212 | 3500 | | | | | 478 | |
| 27 | 88.25 | | 185,000 | | 185,000 | | 1400 | 11.1 | 49 | 2.5 | 212 | 3600 | | | | | 484 | |
| 28 | 87 | | 190,000 | 1000 | 190,000 | 8360 | 1440 | 11.2 | 47 | 2.5 | 212 | 3500 | 19600 | | | | 485 | |
| 29 | 88.75 | | 182,000 | | 182,000 | | 1430 | 11.0 | 48 | 2.5 | 212 | 2500 | | | | | 462 | |
| 30 | 92.25 | | 173,000 | | 173,000 | | 1320 | 11.0 | 48 | 2.5 | 212 | 3100 | | | | | 457 | |
| 31 | 91.70 | | 186,000 | | 186,000 | | 1410 | 11.1 | 49 | 2.5 | 212 | 3400 | | | | | 422 | |
| TOTAL | | | 6183000 | | | 46290 | | | | | | 100,500 | | | | | | |
| MAXIMUM | | | | | | | | 11.0 | | | | | | | | | | |
| MINIMUM | | | | | | | | | | | | | | | | | | |
| AVERAGE | | | | | | | | | | | | | | | | | | |

EVAPORATION LB. STEAM PER LB. STD. FUEL

SEE REVERSE SIDE FOR INSTRUCTIONS

FUEL USED DURING MONTH (STANDARD TONS)

PREPARED BY

DATE

REMARKS

March - 1985

APPROVED BY

DATE

PO

FORM 3367 1 NOV 72 REPLACES DA FORM 5-98, 1 JUN 58, WHICH WILL BE USED

FACILITIES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420-49; the proponent agency is the Corps of Engineers.

INSTALLATION: Ft. Monmouth N.J. | PLANT: R.J. Myer Ctr. | BLDG NO: 270

| DATE | STEAM PRESSURE LB (1) | STEAM PRODUCED BOILER 1 1,000 LB (2) | BOILER 2 1,000 LB (3) | BOILER 3 1,000 LB (4) | TOTAL 1,000 LB (5) | FEED-WATER TO BOILER 1,000 LB (6) | FUEL USED LB. M.C.F. GAL. (7) | EVAP. LB. PER UNIT (8) | OUTSIDE TEMP. AV. °F (9) | FEEDWATER HEATER PRESS. LB. (10) | FEEDWATER HEATER TEMP. °F (11) | MAKEUP GAL (12) | %CO2 BOILER 1 (13) | %CO2 BOILER 2 (14) | %CO2 BOILER 3 (15) | FLUE GAS TEMPERATURE BOILER 1 °F (16) | BOILER 2 °F (17) | BOILER 3 °F (18) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 89.25 | | 194,000 | 98 | 194,000 | | 1470 | 11.1 | 47 | 2.5 | 212 | 3500 | | | | | | |
| 2 | 85.5 | | 182,000 | 2 | 182,000 | | 1380 | 11.0 | 44 | 2.5 | 212 | 3300 | | | | | 428 | |
| 37 65 3 | 88. | | 202,000 | | 202,000 | 2480 | 1540 | 11.0 | 45 | 2.5 | 212 | 3400 | | | | | 455 | |
| 4 | 86. | | 181,000 | 500 | 181,000 | | 1386 | 11.0 | 54 | 2.5 | 212 | 3300 | 16,900 | | | | 488 | |
| 5 | 89. | | 224,000 | | 224,000 | | 1210 | 11.0 | 34 | 2.5 | 212 | 3400 | | | | | 498 | |
| 6 | 88.5 | | 207,000 | | 207,000 | | 1580 | 11.0 | 40 | 2.5 | 212 | 3200 | | | | | 502 | |
| 7 | 90.5 | | 123,000 | 92 | 123,000 | | 1320 | 11.0 | 22 | 2.5 | 212 | 2900 | | | | | 493 | |
| 33 8 | 95.83 | | 183,000 | 4000 | 183,000 | 2130 | 1420 | 11.0 | 44 | 2.5 | 212 | 3100 | | | | | 462 | |
| 9 | 88 | | 169,000 | | 169,000 | | 1290 | 11.0 | 53 | 2.5 | 212 | 3000 | 15,400 | | | | 422 | |
| 10 | 82.58 | | 194,000 | | 194,000 | | 1470 | 11.1 | 45 | 2.5 | 212 | 3200 | | | | | 432 | |
| 11 | 95.29 | | 183,000 | 8 | 183,000 | | 1400 | 11.0 | 47 | 2.5 | 212 | 3700 | | | | | 436 | |
| 12 | 91.33 | | 165,000 | 67 | 165,000 | | 1262 | 11.0 | 55 | 2.5 | 212 | 4000 | | | | | 452 | |
| 37 59 13 | 90.83 | | 160,000 | 000 | 160,000 | 2210 | 1220 | 11.0 | 54 | 2.5 | 212 | 4200 | 20,200 | | | | 435 | |
| 14 | 92.25 | | 181,000 | | 181,000 | | 1320 | 11.1 | 48 | 2.5 | 212 | 3400 | | | | | 413 | |
| 15 | 85.25 | | 125,000 | | 125,000 | | 1340 | 11.0 | 50 | 2.5 | 212 | 4400 | | | | | 450 | |
| 16 | 85 | | 123,000 | | 123,000 | | 1130 | 11.0 | 53 | 2.5 | 212 | 3400 | | | | | 454 | |
| 17 | 89.45 | | 185,000 | | 185,000 | | 1400 | 11.1 | 52 | 2.5 | 212 | 3000 | | | | | 442 | |
| 37 16 18 | 96.25 | | 169,000 | | 169,000 | | 1290 | 11.0 | 54 | 2.5 | 212 | 3200 | | | | | 472 | |
| 19 | 92.20 | | 125,000 | | 125,000 | | 1110 | 11.0 | 66 | 2.5 | 212 | 3800 | | | | | 461 | |
| 20 | 96.91 | | 169,000 | | 169,000 | | 1290 | 11.0 | 65 | 2.5 | 212 | 2900 | | | | | 438 | |
| 21 | 85.33 | | 135,000 | | 135,000 | | 1020 | 11.1 | 58 | 2.5 | 212 | 2800 | | | | | 459 | |
| 22 | | Plant | | Down | | | | | | | | | | | | | 440 | |
| 35 40 23 | 85. | | 153,000 | | 153,000 | | 1120 | 11.0 | 58 | 2.5 | 212 | 2500 | | | | | | |
| 24 | 92.41 | | 144,000 | | 144,000 | | 1900 | 11.1 | 51 | 2.5 | 212 | 1900 | | | | | 432 | |
| 25 | 91.33 | | 123,000 | | 123,000 | | 1310 | 11.1 | 58.5 | 2.5 | 212 | 1200 | | | | | 418 | |
| 26 | 89. | | 165,000 | | 165,000 | | 1262 | 11.0 | 52 | 2.5 | 212 | 4400 | | | | | 452 | |
| 91 27 | 89.5 | | 167,000 | | 167,000 | | 1190 | 11.1 | 64 | 2.5 | 212 | 3300 | | | | | 458 | |
| 28 | 94. | | 92,000 | | 92,000 | | 200 | 11.0 | 65 | 2.5 | 212 | 1900 | | | | | 450 | |
| 29 | | | Plant | | Down | | For | | Conversion | | | | | | | | 420 | |
| 30 | | | 4,645,000 | | | | 36,180 | 11.0 | | | | 93,800 | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | |
| TOTAL | | | | | | | | | | | | | | | | | | |
| MAXIMUM | | | | | | | | | | | | | | | | | | |
| MINIMUM | | | | | | | | | | | | | | | | | | |
| AVERAGE | | | | | | | | | | | | | | | | | | |

EVAPORATION LB. STEAM PER LB. STD. FUEL

FUEL USED DURING MONTH (STANDARD TONS)

REMARKS

APRIL ~~[illegible]~~-1995

SEE REVERSE SIDE FOR INSTRUCTIONS

PREPARED BY | DATE | APPROVED BY | DATE

DA FORM 3967 REPLACES DA FORM 6-90-1 WHICH WILL BE USED.

# FACILITIES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420-49; the proponent agency is the Corps of Engineers.

INSTALLATION: FT Monmouth NJ | PLANT: A-J Mike Ctr | BLDG NO: 27

| DATE | STEAM PRESSURE LB (1) | STEAM PRODUCED BOILER 1 1,000 LB (2) | STEAM PRODUCED BOILER 2 1,000 LB (3) | STEAM PRODUCED BOILER 3 1,000 LB (4) | TOTAL 1,000 LB (5) | FEED-WATER TO BOILER 1,000 LB (6) | FUEL USED LB. M.C.F. GAL. (7) | EVAP. LB. PER UNIT (8) | OUTSIDE TEMP. AV. °F (9) | FEEDWATER HEATER PRESS. LB (10) | FEEDWATER HEATER TEMP. °F (11) | MAKEUP GAL. (12) | %CO2 BOILER 1 (13) | %CO2 BOILER 2 (14) | %CO2 BOILER 3 (15) | FLUE GAS TEMPERATURE BOILER 1 °F (16) | FLUE GAS TEMPERATURE BOILER 2 °F (17) | FLUE GAS TEMPERATURE BOILER 3 °F (18) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | PLANT DOWN FOR GAS CONVERSION | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | AND MAINTANANCE | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | PLANT START UP | | | | | | | | | | | |
| 11 | 85.37 | | 101,000 | 5 | 101000 | 3 | 220 | 11.0 | 22 | 2.5 | 212 | 3600 | | | | | 395 | |
| 12 | 82.5 | | 104,000 | 15 | 104,000 | 9 | 220 | 11.0 | 21 | 2.5 | 212 | 2700 | | | | | 393 | |
| 32 77 13 | 82.33 | | 104,000 | ,0 | 104,000 | 3 | 220 | 11.0 | 63 | 2.5 | 212 | 2400 | 13600 | | | | 392 | |
| 14 | 82.41 | | 106,000 | 00 | 106,000 | 0 | 810 | 11.0 | 66 | 2.5 | 212 | 2200 | | | | | 391 | |
| 15 | 82.25 | | 106,000 | | 106,000 | | 810 | 11.0 | 71 | 2.5 | 212 | 2200 | | | | | 392 | |
| 16 | 82.5 | | 106,000 | 5 | 106,000 | 4 | 810 | 11.0 | 73 | 2.5 | 212 | 3000 | | | | | 391 | |
| 17 | 82.— | | 102,000 | | 102,000 | 1 | 780 | 11.0 | 76 | 2.5 | 212 | 3000 | | | | | 392 | |
| 32 61 18 | 83.— | | 109,000 | 28 | 109,000 | 0 | 830 | 11.0 | 79 | 2.5 | 212 | 2900 | 14200 | | | | 392 | |
| 19 | 83.58 | | 106,000 | 000 | 106,000 | 3 0 | 810 | 11.0 | 83 | 2.5 | 212 | 2900 | | | | | 392 | |
| 20 | 80 | | 105,000 | | 105,000 | | 800 | 11.0 | 84 | 2.5 | 212 | 2900 | | | | | 387 | |
| 21 | 82.— | | 110,000 | 5 | 110,000 | 4 | 840 | 11.0 | 71 | 2.5 | 212 | 2900 | | | | | 391 | |
| 22 | 82.66 | | 110,000 | 4 | 110,000 | 2 | 840 | 11.0 | 72 | 2.5 | 212 | 2900 | | | | | 392 | |
| 32 — 23 | 83.25 | | 113,000 | 6 | 113,000 | 10 | 860 | 11.0 | 69 | 2.5 | 212 | 3600 | 15500 | | | | 385 | |
| 24 | 80.25 | | 110,000 | 000 | 110,000 | | 840 | 11.0 | 69 | 2.5 | 212 | 2800 | | | | | 387 | |
| 25 | 82.— | | 109,000 | | 109,000 | | 830 | 11.0 | 75 | 2.5 | 212 | 3300 | | | | | 387 | |
| 26 | 82.33 | | 114,000 | 5 | 114,000 | 4 | 860 | 11.0 | 75 | 2.5 | 212 | 3300 | | | | | 395 | |
| 27 | 81.41 | | 118,000 | 7 | 118,000 | 3 | 900 | 11.0 | 67 | 2.5 | 212 | 3200 | | | | | 400 | |
| 33 28 | 82.91 | | 118,000 | 1 | 118,000 | 5 | 900 | 11.0 | 66 | 2.5 | 212 | 3200 | 16600 | | | | 391 | |
| 29 | 82.— | | 112,000 | 00 | 112,000 | 0 | 850 | 11.0 | 69 | 2.5 | 212 | 3200 | | | | | 392 | |
| 30 | 82.33 | | 110,000 | 0 | 110,000 | | 840 | 11.0 | 74 | 2.5 | 212 | 3700 | | | | | 387 | |
| 31 | | | | | | | | | | | | | | | | | | |
| TOTAL | | | 2160,000 | | | 16520 | | | | | | 60470 | | | | | | |
| MAXIMUM | | | | | | | | | | | | | | | | | | |
| MINIMUM | | | | | | | | | | | | | | | | | | |
| AVERAGE | | | | | | | | | | | | | | | | | | |

EVAPORATION LB. STEAM PER LB. STD. FUEL

FUEL USED DURING MONTH (STANDARD TONS)

REMARKS: June - 1995

SEE REVERSE SIDE FOR INSTRUCTIONS

PREPARED BY | DATE | APPROVED BY | DATE

DA FORM 3967, 1 NOV 72 REPLACES DA FORM 598, 1 JUN 58, WHICH WILL BE USED.

# FACILITIES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420 49; the proponent agency is the Corps of Engineers.

INSTALLATION: Ft. Monmouth N.J.

PLANT: R.J. Myer CTR

BLDG N: [illegible]

| DATE | STEAM PRESSURE LB (1) | STEAM PRODUCED BOILER 1 1,000 LB. (2) | BOILER 2 1,000 LB. (3) | BOILER 3 1,000 LB. (4) | TOTAL 1,000 LB. (5) | FEED-WATER TO BOILER 1,000 LB. (6) | FUEL USED LB. M.C.F. GAL. (7) | EVAP. LB. PER UNIT (8) | OUTSIDE TEMP. AV. °F. (9) | FEEDWATER HEATER PRESS. LB. (10) | FEEDWATER HEATER TEMP. °F. (11) | MAKEUP GAL. (12) | %CO2 BOILER 1 (13) | %CO2 BOILER 2 (14) | %CO2 BOILER 3 (15) | FLUE GAS TEMPERATURE BOILER 1 °F. (16) | BOILER 2 °F. (17) | BOILER 3 °F. (18) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81 | | 113,000 | 577,000 | 113,000 | | 860 | 11.0 | 75 | 2.5 | 212 | 4200 | | | | | 384 | |
| 2 | 82 | | 109,000 | | 109,000 | 4250 | 830 | 11.0 | 76 | 2.5 | 212 | 3900 | | | | | 383 | |
| 32173 3 | 83 | | 114,000 | | 114,000 | | 820 | 11.0 | 71 | 2.5 | 212 | 2900 | 16,800 | | | | 394 | |
| 4 | 83.66 | | 100,000 | | 100,000 | | 840 | 11.0 | 74 | 2.5 | 212 | 2780 | | | | | 395 | |
| 5 | 84 | | 112,000 | | 112,000 | | 850 | 11.0 | 79 | 2.5 | 212 | 2600 | | | | | 393 | |
| 6 | 83 | | 111,000 | | 111,000 | | 850 | 11.0 | 80 | 2.5 | 212 | 2300 | | | | | 385 | |
| 7 | 83.25 | | 111,000 | 575,000 | 111,000 | 4170 | 850 | 11.0 | 77 | 2.5 | 212 | 3500 | | | | | 385 | |
| 32897 8 | 82 | | 103,000 | | 103,000 | | 790 | 11.0 | 81 | 2.5 | 212 | 2500 | 14,500 | | | | 396 | |
| 9 | 82.29 | | 109,000 | | 109,000 | | 830 | 11.0 | 73 | 2.5 | 212 | 3000 | | | | | 391 | |
| 10 | 84.83 | | 111,000 | | 111,000 | | 850 | 11.0 | 74 | 2.5 | 212 | 3200 | | | | | 391 | |
| 11 | 81 | | 102,000 | 448,000 | 102,000 | | 280 | 11.0 | 75 | 2.5 | 212 | 2400 | | | | | 392 | |
| 12 | 77 | | 103,000 | | 103,000 | 3800 | 290 | 11.0 | 72 | 2.5 | 212 | 3000 | 15,900 | | | | 396 | |
| 32366 13 | 82 | | 98,000 | | 98,000 | | 240 | 11.0 | 82 | 2.5 | 212 | 3400 | | | | | 392 | |
| 14 | 82 | | 98,000 | | 98,000 | | 250 | 11.0 | 88 | 2.5 | 212 | 3800 | | | | | 392 | |
| 15 | 82.33 | | 97,000 | | 97,000 | | 240 | 11.0 | 85 | 2.5 | 212 | 3300 | | | | | 391 | |
| 16 | 82.33 | | 97,000 | 480,000 | 97,000 | 3630 | 240 | 11.0 | 86 | 2.5 | 212 | 3200 | | | | | 396 | |
| 17 | 81.83 | | 98,000 | | 98,000 | | 250 | 11.0 | 81 | 2.5 | 212 | 2800 | | | | | 392 | |
| 32830 18 | 83.25 | | 106,000 | | 106,000 | | 220 | 11.0 | 81 | 2.5 | 212 | 2000 | 13,000 | | | | 389 | |
| 19 | 81.95 | | 103,000 | | 103,000 | | 290 | 11.0 | 83 | 2.5 | 212 | 2200 | | | | | 395 | |
| 20 | 82.66 | | 76,000 | | 76,000 | | 580 | 11.0 | 81 | 2.5 | 212 | 2400 | | | | | 393 | |
| 21 | 77.5 | | 75,000 | | 75,000 | | 570 | 11.1 | 79 | 2.5 | 212 | 2810 | | | | | 395 | |
| 22 | 83.92 | | 115,000 | 501,000 | 115,000 | 3830 | 880 | 11.0 | 78 | 2.5 | 212 | 2800 | 13,800 | | | | 416 | |
| 30454 23 | 81.— | | 103,000 | | 103,000 | | 790 | 11.0 | 88 | 2.5 | 212 | 2900 | | | | | 420 | |
| 24 | 81.83 | | 105,000 | | 105,000 | | 800 | 11.0 | 84 | 2.5 | 212 | 3000 | | | | | 420 | |
| 25 | 82.40 | | 103,000 | | 103,000 | | 790 | 11.0 | 82 | 2.5 | 212 | 3100 | | | | | 413 | |
| 26 | 82.45 | | 100,000 | 618,000 | 100,000 | 3940 | 760 | 11.0 | 87 | 2.5 | 212 | 3000 | | | | | 418 | |
| 27 | 84 | | 103,000 | | 103,000 | | 790 | 11.0 | 87 | 2.5 | 212 | 3200 | 18,100 | | | | 420 | |
| 32? 28 | 82.5 | | 101,000 | | 101,000 | | 770 | 11.0 | 85 | 2.5 | 212 | 3100 | | | | | 417 | |
| 29 | 80.66 | | 103,000 | | 103,000 | | 790 | 11.0 | 88 | 2.5 | 212 | 2900 | | | | | 417 | |
| 30 | 83.33 | | 102,000 | | 102,000 | | 780 | 11.0 | 87 | 2.5 | 212 | 3000 | | | | | 420 | |
| 31 | 81.91 | | 109,000 | | 109,000 | | 830 | 11.0 | 83 | 2.5 | 212 | 3400 | | | | | 420 | |
| TOTAL | | | 3,159,000 | | | 23620 | | 11.0 | | | | | | | | | | |
| MAXIMUM | | | | | | | | | | | | 92,100 | | | | | | |
| MINIMUM | | | | | | | | | | | | | | | | | | |
| AVERAGE | | | | | | | | | | | | | | | | | | |

EVAPORATION LB. STEAM PER LB STD. FUEL

FUEL USED DURING MONTH (STANDARD TONS)

REMARKS: July - 1995

SEE REVERSE SIDE FOR INSTRUCTIONS

PREPARED BY

DATE

APPROVED BY

DATE

DA FORM 3967 1 NOV 72 REPLACES DA FORM 590 1 JUN 58 WHICH WILL BE USED

# Attachment 8.9

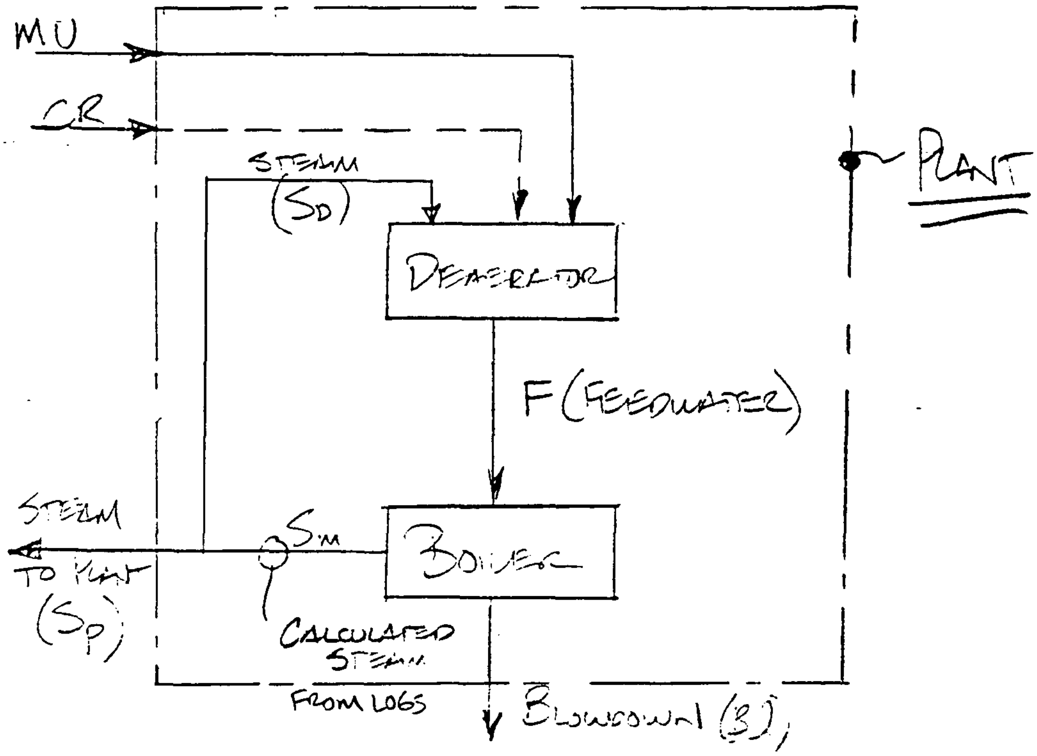
# Boiler Plant Steam Use Calculations

Entech Engineering, Inc.
Reading, PA • Pottsville, PA • Lehigh Valley, PA

ENTECH

Project No. #30.05
Date 1/25/96
Project FT. MONMOUTH - BLDG 2700
By J. DIVELBISS
Subject BALANCE OF BOILER SYSTEM
Page 1 of 5

Comments




EQUATIONS

BOILER $F = BD + S_M$

DEAERATOR $F = MU + CR + S_D$

PLANT $MU + CR = S_P + BD$

$MU = S_P + BD - CR$

1993/1994 $MU = (66,063 - 5,829) + 1,200 - 59,378$

$MU = 2,661$ ✓

THE DERIVATION of the EQUATIONS FOR BALANCING THE DEARATOR FOLLOWS.

**Entech Engineering, Inc.**
Reading, PA • Pottsville, PA • Lehigh Valley, PA

ENTECH

Project No. 4130.05
Date 1/25/96
Project FT MONMOUTH - BLDG 2700
By J. DIVELBISS
Subject DEAERATOR MASS & HEAT BALANCE
Page 2 of 5

Comments

PROBLEM: BALANCE DEAERATOR BASED ON KNOWN/ESTIMATED MAKE-UP WATER RELATIVE TO FEEDWATER = 1

CONDITIONS: MAKE-UP RATE % = VARIES (GIVEN)
" TEMP = 50°F (AVERAGE)
" ENTHALPY = 18 BTU/LBM

CONDENSATE TEMP = 150°F (AVERAGE)
" ENTHALPY = 118 BTU/LBM
" RATE % = UNKNOWN (SOLVE %)

STEAM ENTHALPY = 1187.2 BTU/LBM → SATURATED 85 PSIG THROTTLED TO ≈ 15-20
STEAM RATE % = UNKNOWN (SOLVE %)

MIX TEMP = NOT REQUIRED
MIX ENTHALPY = " "
MIX RATE % = 1 - CONDENSATE FRACTION

FEEDWATER TEMP = 212°F (AVE)
FEEDWATER ENTHALPY = 180 BTU/LBM
FEEDWATER RATE % = 100% (UNITY)

APPROACH:

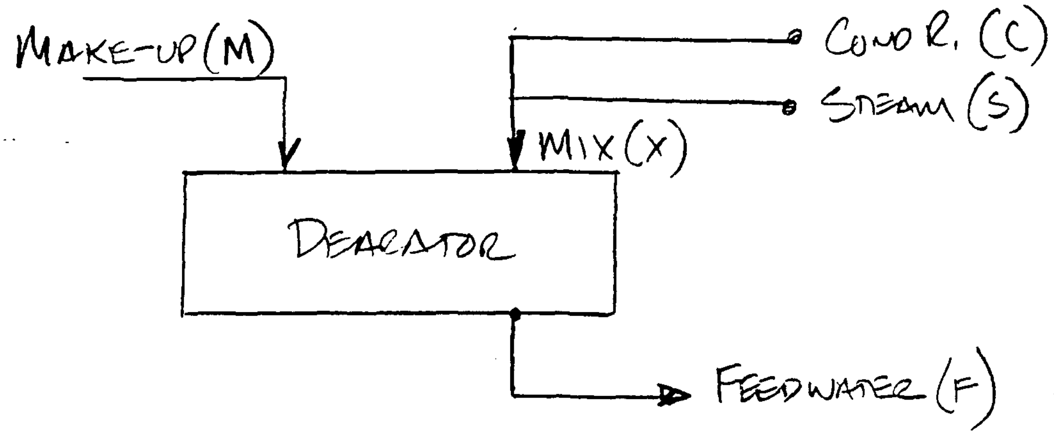
TO SOLVE FOR BALANCE BETWEEN KNOWN MAKE-UP WATER PLUS MIX (STEAM + COND. RETURN) TO EQUAL FEEDWATER OUT TO BOILER.

1. SOLVE FOR STEAM REQUIRED FIRST IN PERCENT (%).

2. SOLVE FOR CONDENSATE REQUIRED.

1 - MAKE-UP - STEAM = CONDENSATE (%)

Comments




## Mass Balance(s)

Feedwater $F = M + X = M + (C+S) = 1$

Mix $X = C + S = 1 - M$

Condensate $C = 1 - M - S$

## Heat Balance(s)

$h$ = enthalpy = BTU/LBM

Feedwater (Solve for mix enthalpy)

$$F(h_f) = m(h_m) + x(h_x)$$
$$(1)(h_f) = m(h_m) + (1-m)h_x$$
$$h_x = (h_f - m(h_m))/(1-m)$$

Mix (Solve for mix enthalpy)

$$x(h_x) = c(h_c) + s(h_s)$$
$$(1-m)h_x = (1-m-s)(h_c) + s(h_s)$$
$$(1-m)h_x = (h_c) - m(h_c) - s(h_c) + s(h_s)$$
$$h_x = \frac{[(h_c) - m(h_c) - s(h_c) + s(h_s)]}{(1-m)}$$

Comments

SETTINGS $h_x$ EQUATIONS EQUAL TO EACH & SOLVING FOR STEAM (s)

$$\underset{\text{(FEEDWATER EQUATION)}}{h_x} = \underset{\text{(MIX EQUATION)}}{h_x}$$

$$(h_f - m(h_m))/\cancel{(1-m)} = \frac{[(h_c) - m(h_c) - s(h_c) + s(h_s)]}{\cancel{(1-m)}}$$

$$h_f - m(h_m) = h_c - m(h_c) - s(h_c) + s(h_s)$$

$$s(h_s) - s(h_c) = h_f - m(h_m) - h_c + m(h_c)$$

$$\boxed{s = [(h_f - h_c) - m(h_m - h_c)]/(h_s - h_c)}$$ STEAM RATE

$$\boxed{c = 1 - m - s}$$ CONDENSATE RATE

EXAMPLE: 5% MAKE-UP RATE

$$s = [(180-118) - (.05)(18-118)]/(1187.2-118)$$

$$s = [62 + 5]/1069.2$$

$$s = 0.06266 \times 100 = 6.266\% \text{ (STEAM)}$$

$$c = 1 - 0.05 - .06266 = 0.887 \text{ or } 88.7\% \text{ (CONDENSATE)}$$

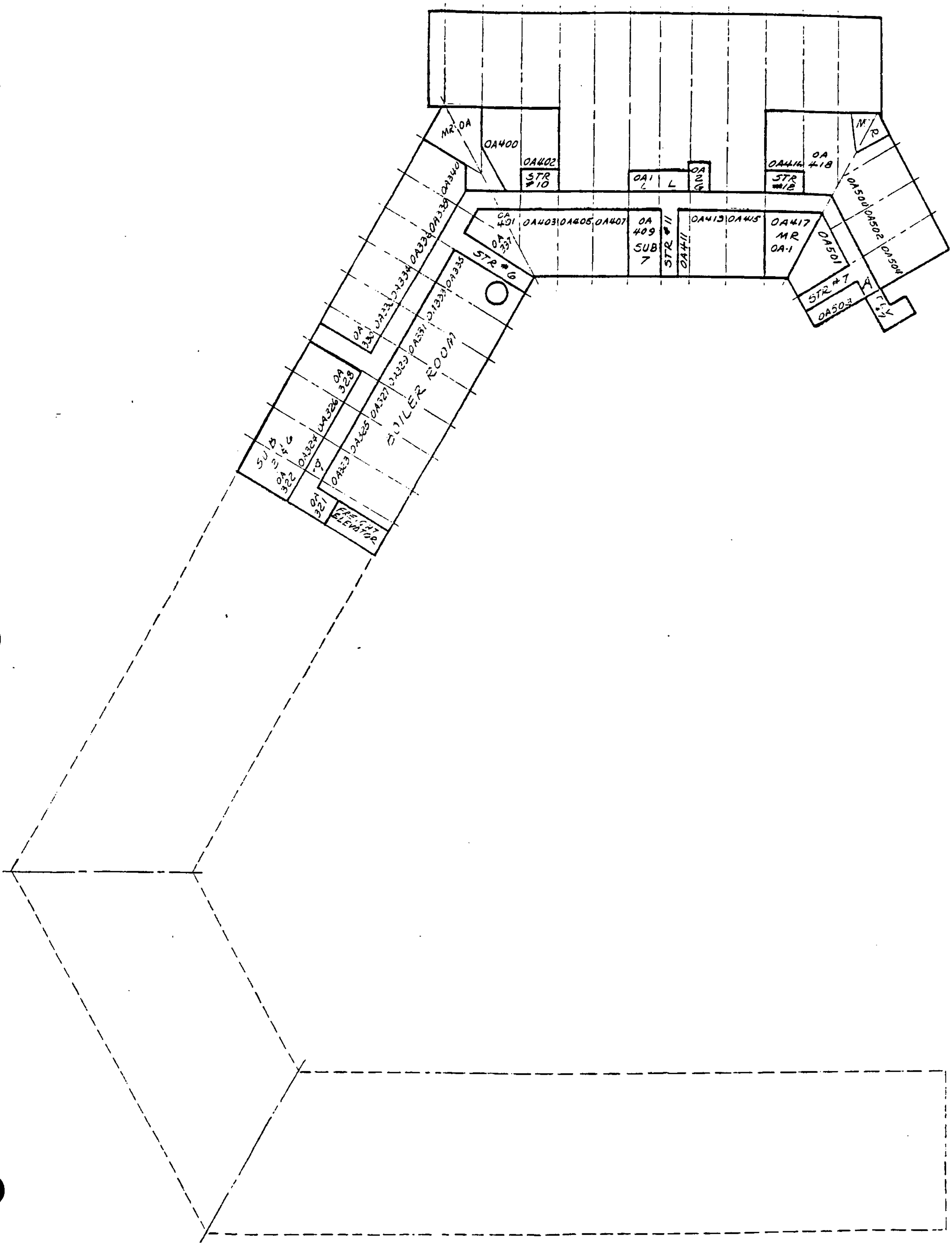
(SEE PG 5 OF 5 ATTACHED WHICH IS A SPREADSHEET OF THESE CALCULATIONS)

Dearator Mass & Heat Balance for Fort Monmouth Job 4130.05 January 25, 1996 

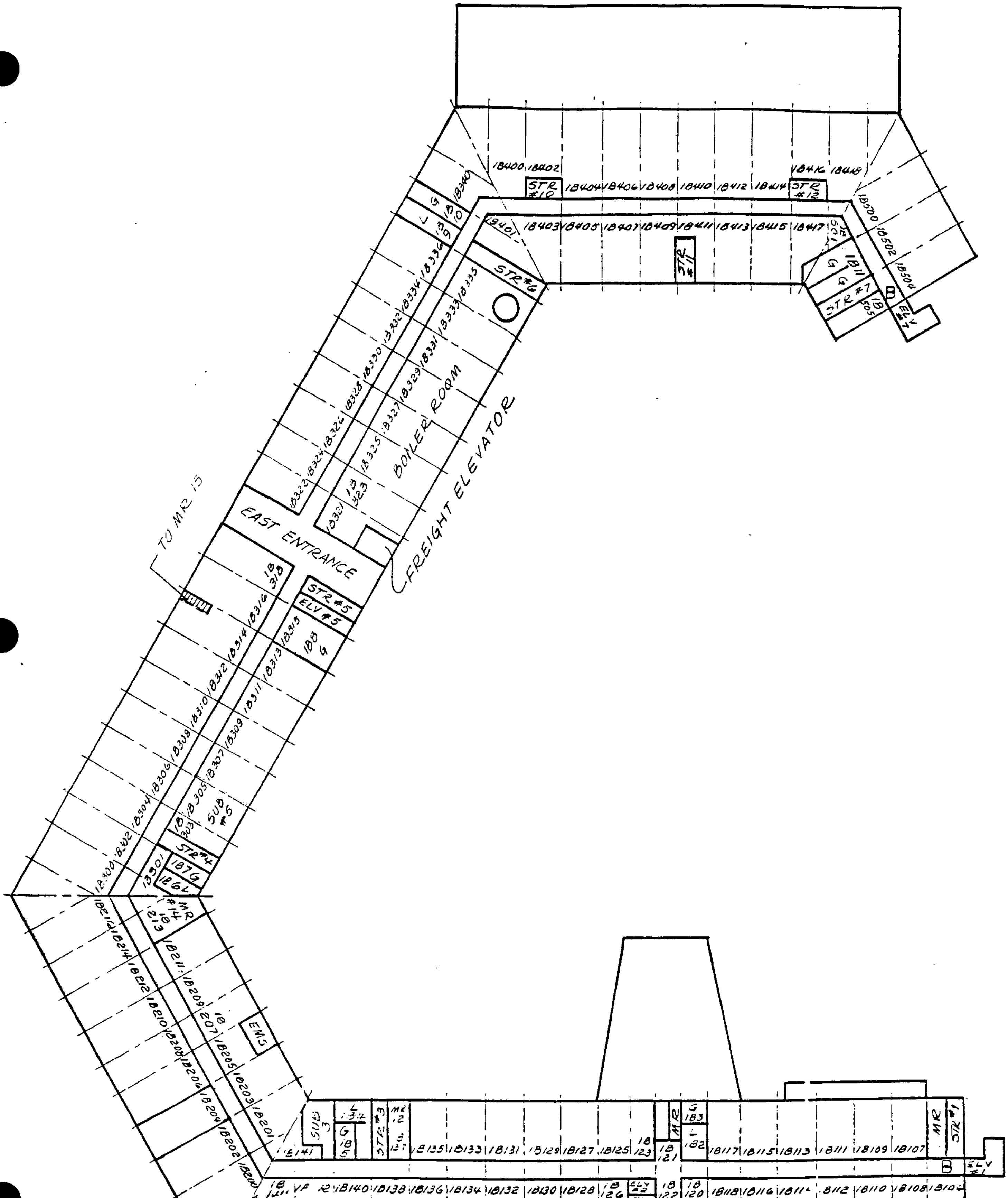
| Feedwater Ave. Temp.(F) | Feedwater (Btu/lbm) | Make-Up (%) | Make-Up Ave. Temp.(F) | Make-Up (Btu/lbm) | Condensate (% - Calc.) | Condensate Ave. Temp.(F) | Condensate (Btu/lbm) | Heat. Steam (% - Calc.) | Heat. Steam (Btu/lbm) |
|---|---|---|---|---|---|---|---|---|---|
| 212 | 180 | 1.2% | 50 | 18 | 92.9% | 150 | 118 | 5.911% | 1187.2 |
| 212 | 180 | 1.4% | 50 | 18 | 92.7% | 150 | 118 | 5.930% | 1187.2 |
| 212 | 180 | 1.6% | 50 | 18 | 92.5% | 150 | 118 | 5.948% | 1187.2 |
| 212 | 180 | 1.8% | 50 | 18 | 92.2% | 150 | 118 | 5.967% | 1187.2 |
| 212 | 180 | 2.0% | 50 | 18 | 92.0% | 150 | 118 | 5.986% | 1187.2 |
| 212 | 180 | 2.2% | 50 | 18 | 91.8% | 150 | 118 | 6.004% | 1187.2 |
| 212 | 180 | 2.4% | 50 | 18 | 91.6% | 150 | 118 | 6.023% | 1187.2 |
| 212 | 180 | 2.6% | 50 | 18 | 91.4% | 150 | 118 | 6.042% | 1187.2 |
| 212 | 180 | 2.8% | 50 | 18 | 91.1% | 150 | 118 | 6.061% | 1187.2 |
| 212 | 180 | 3.0% | 50 | 18 | 90.9% | 150 | 118 | 6.079% | 1187.2 |
| 212 | 180 | 3.2% | 50 | 18 | 90.7% | 150 | 118 | 6.098% | 1187.2 |
| 212 | 180 | 3.4% | 50 | 18 | 90.5% | 150 | 118 | 6.117% | 1187.2 |
| 212 | 180 | 3.6% | 50 | 18 | 90.3% | 150 | 118 | 6.135% | 1187.2 |
| 212 | 180 | 3.8% | 50 | 18 | 90.0% | 150 | 118 | 6.154% | 1187.2 |
| 212 | 180 | 4.0% | 50 | 18 | 89.8% | 150 | 118 | 6.173% | 1187.2 |
| 212 | 180 | 4.2% | 50 | 18 | 89.6% | 150 | 118 | 6.192% | 1187.2 |
| 212 | 180 | 4.4% | 50 | 18 | 89.4% | 150 | 118 | 6.210% | 1187.2 |
| 212 | 180 | 4.6% | 50 | 18 | 89.2% | 150 | 118 | 6.229% | 1187.2 |
| 212 | 180 | 4.8% | 50 | 18 | 89.0% | 150 | 118 | 6.248% | 1187.2 |
| 212 | 180 | 5.0% | 50 | 18 | 88.7% | 150 | 118 | 6.266% | 1187.2 |
| 212 | 180 | 5.2% | 50 | 18 | 88.5% | 150 | 118 | 6.285% | 1187.2 |
| 212 | 180 | 5.4% | 50 | 18 | 88.3% | 150 | 118 | 6.304% | 1187.2 |
| 212 | 180 | 5.6% | 50 | 18 | 88.1% | 150 | 118 | 6.322% | 1187.2 |
| 212 | 180 | 5.8% | 50 | 18 | 87.9% | 150 | 118 | 6.341% | 1187.2 |
| 212 | 180 | 6.0% | 50 | 18 | 87.6% | 150 | 118 | 6.360% | 1187.2 |
| 212 | 180 | 6.2% | 50 | 18 | 87.4% | 150 | 118 | 6.379% | 1187.2 |
| 212 | 180 | 6.4% | 50 | 18 | 87.2% | 150 | 118 | 6.397% | 1187.2 |
| 212 | 180 | 6.6% | 50 | 18 | 87.0% | 150 | 118 | 6.416% | 1187.2 |
| 212 | 180 | 6.8% | 50 | 18 | 86.8% | 150 | 118 | 6.435% | 1187.2 |
| 212 | 180 | 7.0% | 50 | 18 | 86.5% | 150 | 118 | 6.453% | 1187.2 |
| 212 | 180 | 7.2% | 50 | 18 | 86.3% | 150 | 118 | 6.472% | 1187.2 |
| 212 | 180 | 7.4% | 50 | 18 | 86.1% | 150 | 118 | 6.491% | 1187.2 |
| 212 | 180 | 7.6% | 50 | 18 | 85.9% | 150 | 118 | 6.510% | 1187.2 |
| 212 | 180 | 7.8% | 50 | 18 | 85.7% | 150 | 118 | 6.528% | 1187.2 |
| 212 | 180 | 8.0% | 50 | 18 | 85.5% | 150 | 118 | 6.547% | 1187.2 |
| 212 | 180 | 8.2% | 50 | 18 | 85.2% | 150 | 118 | 6.566% | 1187.2 |
| 212 | 180 | 8.4% | 50 | 18 | 85.0% | 150 | 118 | 6.584% | 1187.2 |
| 212 | 180 | 8.6% | 50 | 18 | 84.8% | 150 | 118 | 6.603% | 1187.2 |
| 212 | 180 | 8.8% | 50 | 18 | 84.6% | 150 | 118 | 6.622% | 1187.2 |
| 212 | 180 | 9.0% | 50 | 18 | 84.4% | 150 | 118 | 6.640% | 1187.2 |
| 212 | 180 | 9.2% | 50 | 18 | 84.1% | 150 | 118 | 6.659% | 1187.2 |
| 212 | 180 | 9.4% | 50 | 18 | 83.9% | 150 | 118 | 6.678% | 1187.2 |
| 212 | 180 | 9.6% | 50 | 18 | 83.7% | 150 | 118 | 6.697% | 1187.2 |
| 212 | 180 | 9.8% | 50 | 18 | 83.5% | 150 | 118 | 6.715% | 1187.2 |
| 212 | 180 | 10.0% | 50 | 18 | 83.3% | 150 | 118 | 6.734% | 1187.2 |
| 212 | 180 | 10.2% | 50 | 18 | 83.0% | 150 | 118 | 6.753% | 1187.2 |
| 212 | 180 | 10.4% | 50 | 18 | 82.8% | 150 | 118 | 6.771% | 1187.2 |
| 212 | 180 | 10.6% | 50 | 18 | 82.6% | 150 | 118 | 6.790% | 1187.2 |
| 212 | 180 | 10.8% | 50 | 18 | 82.4% | 150 | 118 | 6.809% | 1187.2 |
| 212 | 180 | 11.0% | 50 | 18 | 82.2% | 150 | 118 | 6.828% | 1187.2 |
| 212 | 180 | 11.2% | 50 | 18 | 82.0% | 150 | 118 | 6.846% | 1187.2 |
| 212 | 180 | 11.4% | 50 | 18 | 81.7% | 150 | 118 | 6.865% | 1187.2 |
| 212 | 180 | 11.6% | 50 | 18 | 81.5% | 150 | 118 | 6.884% | 1187.2 |
| 212 | 180 | 11.8% | 50 | 18 | 81.3% | 150 | 118 | 6.902% | 1187.2 |
| 212 | 180 | 12.0% | 50 | 18 | 81.1% | 150 | 118 | 6.921% | 1187.2 |
| 212 | 180 | 12.2% | 50 | 18 | 80.9% | 150 | 118 | 6.940% | 1187.2 |
| 212 | 180 | 12.4% | 50 | 18 | 80.6% | 150 | 118 | 6.958% | 1187.2 |
| 212 | 180 | 12.6% | 50 | 18 | 80.4% | 150 | 118 | 6.977% | 1187.2 |
| 212 | 180 | 12.8% | 50 | 18 | 80.2% | 150 | 118 | 6.996% | 1187.2 |
| 212 | 180 | 13.0% | 50 | 18 | 80.0% | 150 | 118 | 7.015% | 1187.2 |
| 212 | 180 | 13.2% | 50 | 18 | 79.8% | 150 | 118 | 7.033% | 1187.2 |
| 212 | 180 | 13.4% | 50 | 18 | 79.5% | 150 | 118 | 7.052% | 1187.2 |
| 212 | 180 | 13.6% | 50 | 18 | 79.3% | 150 | 118 | 7.071% | 1187.2 |
| 212 | 180 | 13.8% | 50 | 18 | 79.1% | 150 | 118 | 7.089% | 1187.2 |
| 212 | 180 | 14.0% | 50 | 18 | 78.9% | 150 | 118 | 7.108% | 1187.2 |
| 212 | 180 | 14.2% | 50 | 18 | 78.7% | 150 | 118 | 7.127% | 1187.2 |
| 212 | 180 | 14.4% | 50 | 18 | 78.5% | 150 | 118 | 7.146% | 1187.2 |
| 212 | 180 | 14.6% | 50 | 18 | 78.2% | 150 | 118 | 7.164% | 1187.2 |
| 212 | 180 | 14.8% | 50 | 18 | 78.0% | 150 | 118 | 7.183% | 1187.2 |
| 212 | 180 | 15.0% | 50 | 18 | 77.8% | 150 | 118 | 7.202% | 1187.2 |
| 212 | 180 | 15.2% | 50 | 18 | 77.6% | 150 | 118 | 7.220% | 1187.2 |
| 212 | 180 | 15.4% | 50 | 18 | 77.4% | 150 | 118 | 7.239% | 1187.2 |
| 212 | 180 | 15.6% | 50 | 18 | 77.1% | 150 | 118 | 7.258% | 1187.2 |
| 212 | 180 | 15.8% | 50 | 18 | 76.9% | 150 | 118 | 7.276% | 1187.2 |
| 212 | 180 | 16.0% | 50 | 18 | 76.7% | 150 | 118 | 7.295% | 1187.2 |
| 212 | 180 | 16.2% | 50 | 18 | 76.5% | 150 | 118 | 7.314% | 1187.2 |
| 212 | 180 | 16.4% | 50 | 18 | 76.3% | 150 | 118 | 7.333% | 1187.2 |
| 212 | 180 | 16.6% | 50 | 18 | 76.0% | 150 | 118 | 7.351% | 1187.2 |
| 212 | 180 | 16.8% | 50 | 18 | 75.8% | 150 | 118 | 7.370% | 1187.2 |
| 212 | 180 | 17.0% | 50 | 18 | 75.6% | 150 | 118 | 7.389% | 1187.2 |

## Attachment 8.10

## Building 2700 Room Numbers



OA400
OA402
STR #10
OA414
OA 418
STR #12
OA403
OA405
OA407
OA 409
SUB 7
STR #11
OA411
OA413
OA415
OA417
MR
OA-1
OA501
OA500
OA502
OA504
STR #7
OA503
STR #6
OA 328
OA326
OA324
OA 322
OA 330
OA335
BOILER ROOM
FREIGHT ELEVATOR
OA 321


EAST ENTRANCE
BOILER ROOM
FREIGHT ELEVATOR
TO MR 15
STR #6
STR #5
ELV #5
STR #4
STR #3
STR #1
STR #7
STR #10
STR #11
STR #12
SUB #5
SUB 3
SUB #4
ELV #1
ELV #7
EMS
MR
18400
18402
18404
18406
18408
18410
18412
18414
18416
18418
18401
18403
18405
18407
18409
18411
18413
18415
18417
18500
18502
18504
18321
18322
18324
18325
18326
18327
18328
18329
18330
18331
18332
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18334
18335
18336
18301
18302
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18305
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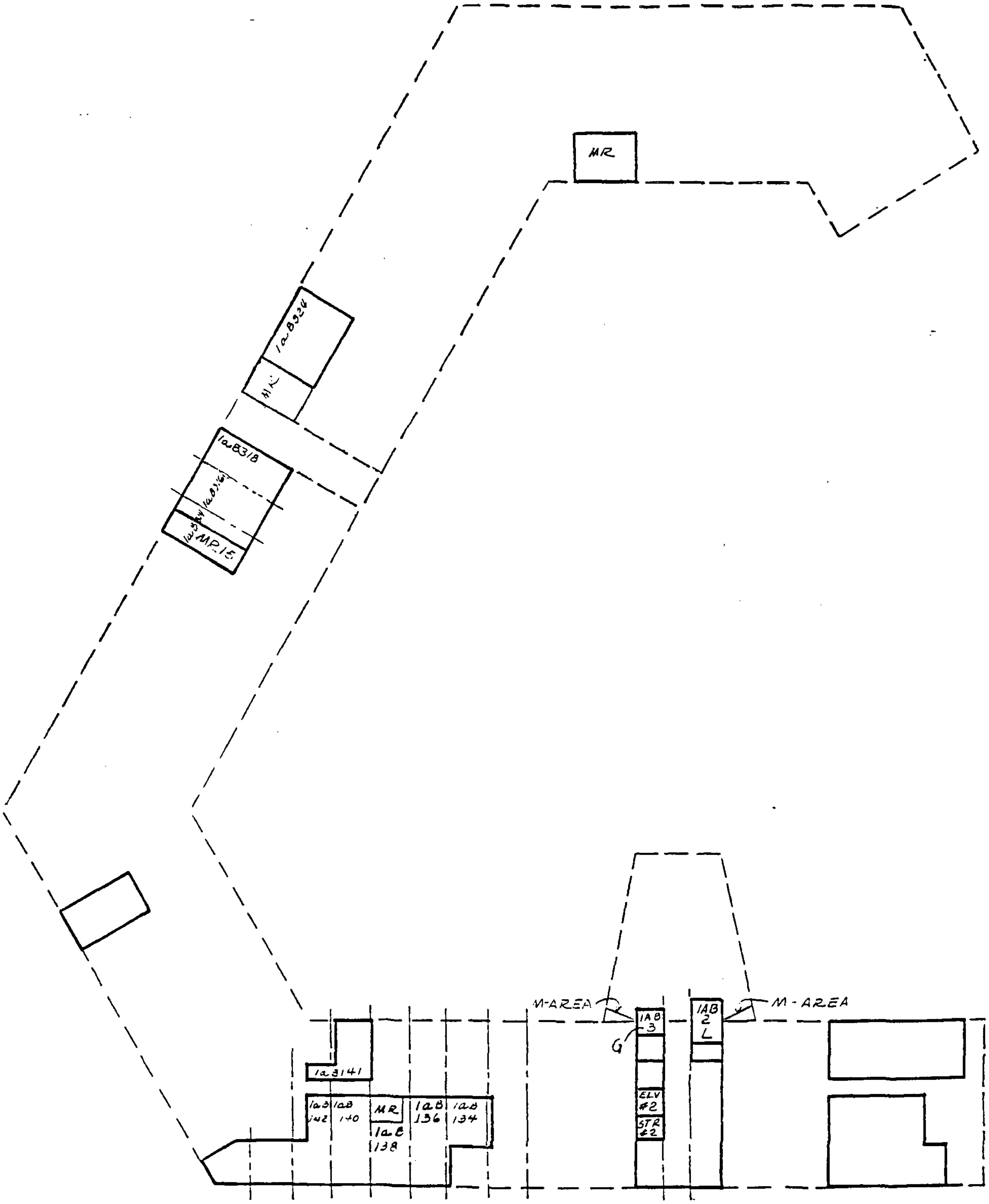
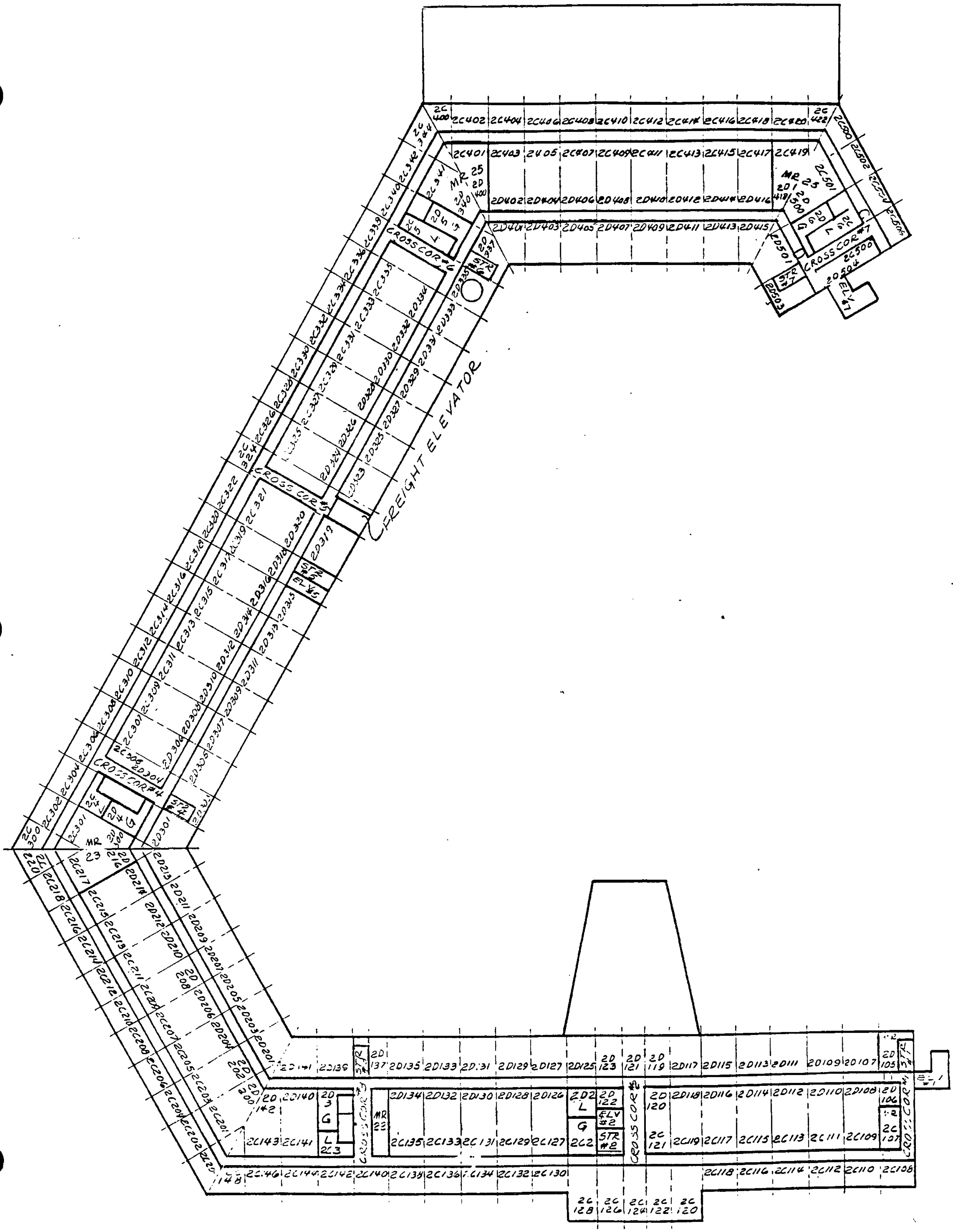
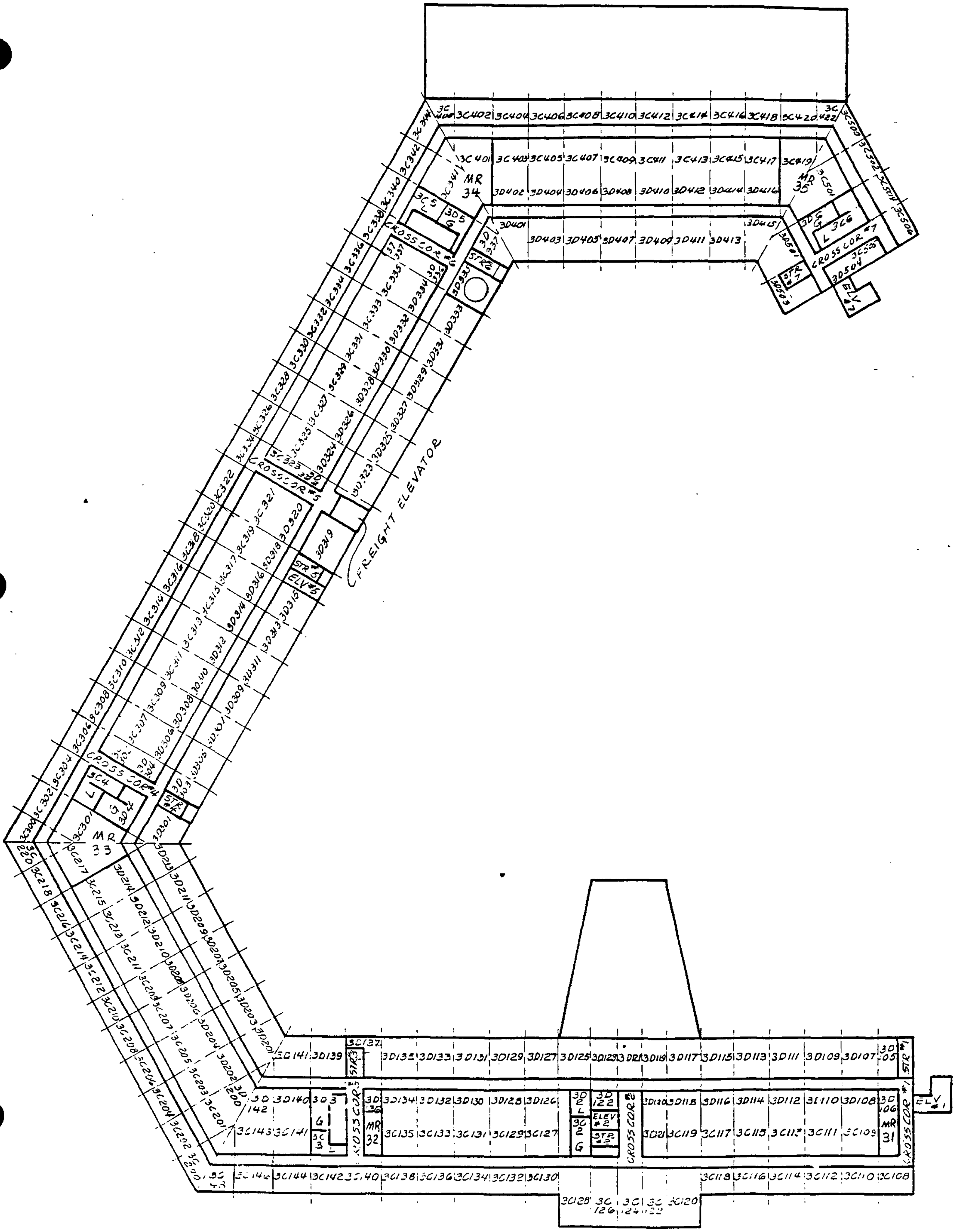
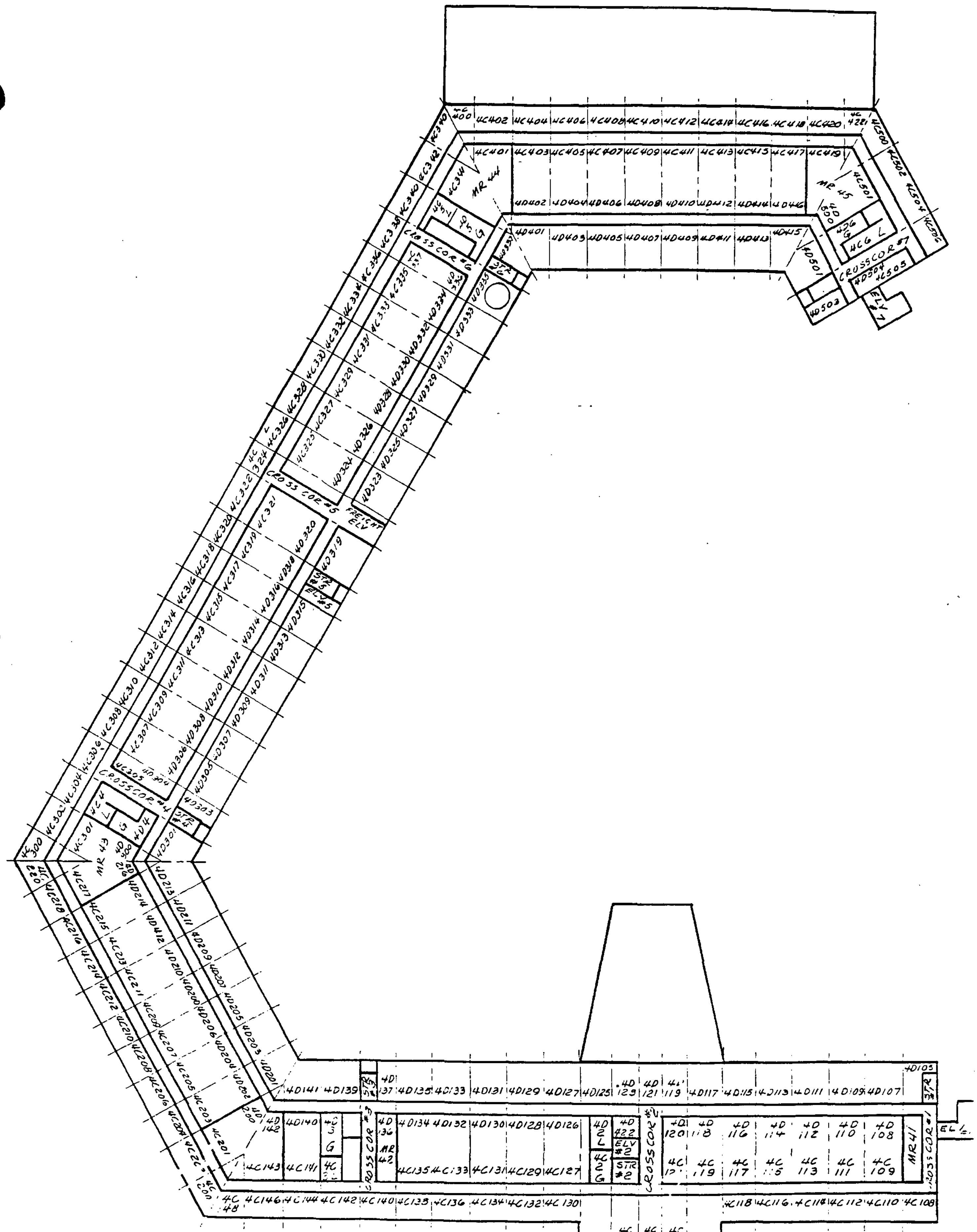
18311
18312
18313
18314
18315
18316
18201
18202
18203
18205
18206
18208
18209
18210
18211
18212
18214
18107
18108
18109
18110
18111
18112
18113
18115
18116
18117
18118
18124
18125
18126
18127
18128
18129
18130
18131
18132
18133
18134
18135
18136
18138
18140
18141


MR
1aB324
MR
1aB318
1aB316
1aB314
MP 15
M-AREA
M-AREA
1AB 3
G
1AB 2 L
ELV #2
STR #2
1aB141
1aB 142
1aB 140
MR
1aB 138
1aB 136
1aB 134


FREIGHT ELEVATOR
CROSS COR #4
CROSS COR #5
CROSS COR #6
CROSS COR #7
CROSS COR #2
CROSS COR #3
MR 23
MR 25
ELV #2
STR #2
ELV #7
ELV #5



MR 34
MR 35
MR 33
MR 32
MR 31
CROSS COR
FREIGHT ELEVATOR
ELV #1
ELV #7
ELV #5



CROSS COR #6
CROSS COR #5
CROSS COR #4
CROSS COR #3
CROSS COR #2
CROSSCOR #7
FREIGHT ELV
MR 44
MR 45
MR 43
MR 42
MR 41
ELV #7
ELV #2
STR #2

# Attachment 8.11

# EZDOE Baseline Modeling Results

```
INPUT LOADS  ..

                  $-----------------------------------$
                  $ E Z - D O E   L O A D S   I N P U T $
                  $-----------------------------------$

                     $ GENERAL PROJECT DATA

TITLE  LINE-1 *          ENTECH  ENGINEERING          *
       LINE-2 *EZDOE - ELITE SOFTWARE DEVELOPMENT INC*
       LINE-3 *    READING,      PA        19603      *

       LINE-4 *4130.05 FT. MONMOUTH - MYER CENTER, NJ  *
       LINE-5 *FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1   * ..

ABORT                ERRORS  ..
DIAGNOSTIC           WARNINGS ..
LOADS-REPORT         SUMMARY=(LS-F)   ..
BUILDING-LOCATION    ALTITUDE = 15.
                     X-REF = 0.0
                     Y-REF = 0.0   ..
RUN-PERIOD           JAN 1 1994 THRU DEC 31 1994   ..


                     $ SCHEDULES

D24FULOFF  =DAY-SCHEDULE  (1,24) (0.) ..

DOCCUP01   =DAY-SCHEDULE  (1,6) (0.07)
                          (7,8) (0.7,0.9)
                          (9,14) (1.)
                          (15,18) (0.9,0.7,0.25,0.15)
                          (19,24) (0.07) ..

d24occofhr =DAY-SCHEDULE  (1,24) (0.07) ..

DWKLITE1   =DAY-SCHEDULE  (1,6) (0.1)
                          (7,8) (0.5,0.9)
                          (9,14) (1.)
                          (15,18) (0.9,0.7,0.25,0.15)
                          (19,24) (0.1) ..

DNOTLITE1  =DAY-SCHEDULE  (1,24) (0.1) ..

DINFILWIN1 =DAY-SCHEDULE  (1,24) (0.8) ..

DINFILSUM1 =DAY-SCHEDULE  (1,24) (0.8) ..

DFULON24   =DAY-SCHEDULE  (1,24) (1.) ..

DEQPWKDAY  =DAY-SCHEDULE  (1,7) (0.15)
                          (8,19) (0.5)
                          (20,24) (0.15) ..

DEQAWKEND  =DAY-SCHEDULE  (1,24) (0.15) ..


W24FULON7D =WEEK-SCHEDULE  (ALL) DFULON24  ..
```

```
WOCC01      =WEEK-SCHEDULE   (WD)  DOCCUP01
                             (WEH) d24occofhr  ..

WLITE1      =WEEK-SCHEDULE   (WD)  DWKLITE1
                             (WEH) DNOTLITE1  ..

WINFILWIN1 =WEEK-SCHEDULE    (ALL) DINFILWIN1  ..

WINFILSUM1 =WEEK-SCHEDULE    (ALL) DINFILSUM1  ..

WHR16MAY    =WEEK-SCHEDULE   (MON) DFULON24
                             (TUE) D24FULOFF
                             (WED) D24FULOFF
                             (THU) D24FULOFF
                             (FRI) D24FULOFF
                             (SAT) D24FULOFF
                             (SUN) D24FULOFF
                             (HOL) D24FULOFF ..

WLFULOF     =WEEK-SCHEDULE   (ALL) D24FULOFF  ..

WEQSCHA     =WEEK-SCHEDULE   (WD)  DEQPWKDAY
                             (WEH) DEQAWKEND  ..


$ 24 HR FULON 7D/WK WK1
Y24FULON7D =SCHEDULE THRU DEC 31 W24FULON7D  ..

$ YR LOADS OCCUP SCH 01
YOCC01      =SCHEDULE THRU DEC 31 WOCC01  ..

$ YR LIGHTING SCH 1/.1
YLITE1      =SCHEDULE THRU DEC 31 WLITE1  ..

$ YR INFIL SCHD 1
YINFIL1     =SCHEDULE THRU MAY 15 WINFILWIN1
                      THRU OCT 15 WINFILSUM1
                      THRU DEC 31 WINFILWIN1  ..

$ HRLY RPT 16MAY
HRMAY16     =SCHEDULE THRU MAY 15 WLFULOF
                      THRU MAY 16 WHR16MAY
                      THRU DEC 31 WLFULOF  ..

$ YR EQUIPMENT SCHDA 5015
YEQSCHA     =SCHEDULE THRU DEC 31 WEQSCHA  ..


                    $ CONSTRUCTION TYPES


$ ROOF CON1 MAIN ROOF
ROOFCON1 =CONSTRUCTION   U-VALUE =  0.100  ..

 $ EXTERIOR WAL1 TYP
EXWAL1   =CONSTRUCTION   U-VALUE =  0.080  ..
```

```
 $ INTERIOR WALL 1 TYP
INTWAL1  =CONSTRUCTION   U-VALUE =  0.480
                          ABSORPTANCE = 0.000  ..

 $ EXTERIOR DOOR TYP 01 U=.4
EXTDR01  =CONSTRUCTION   U-VALUE =  0.400  ..

 $ UNDER GRND WALL 1
UWAL1    =CONSTRUCTION   U-VALUE =  0.100  ..

GLTYP1   =GLASS-TYPE     SHADING-COEF = 0.560
                         PANES = 1
                         GLASS-CONDUCTANCE =  0.520  ..



                     $ SPACE DESCRIPTION

1EXTPER    =SPACE    AREA = 38634.0  VOLUME = 647120.0
                     TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                     PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                     PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                     LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 3.1
                     LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                     EQUIP-SCHEDULE = YEQSCHA  EQUIPMENT-W/SQFT = 1.3
                     INF-METHOD = NONE   ..

               E-W      HEIGHT = 22.3  WIDTH = 51.0  CONS = EXWAL1
                        AZIMUTH = 270   ..

                 WINDOW HEIGHT = 2.7  WIDTH = 41.3  G-T = GLTYP1 ..

               E-W      HEIGHT = 22.3  WIDTH = 96.0  CONS = EXWAL1
                        AZIMUTH = 180   ..

                 WINDOW HEIGHT = 2.7  WIDTH = 77.8  G-T = GLTYP1 ..

               E-W      HEIGHT = 22.3  WIDTH = 183.0  CONS = EXWAL1
                        AZIMUTH = 135   ..

                 WINDOW HEIGHT = 2.7  WIDTH = 148.2  G-T = GLTYP1 ..

               E-W      HEIGHT = 22.3  WIDTH = 384.5  CONS = EXWAL1
                        AZIMUTH = 90   ..

                 WINDOW HEIGHT = 2.7  WIDTH = 311.5  G-T = GLTYP1 ..

                 DOOR   HEIGHT = 7.0  WIDTH = 5.0  CONS = EXTDR01
                        MULTIPLIER = 2.0   ..

               E-W      HEIGHT = 22.3  WIDTH = 24.0  CONS = EXWAL1
                        AZIMUTH = 45   ..

                 WINDOW HEIGHT = 2.7  WIDTH = 19.4  G-T = GLTYP1 ..

               E-W      HEIGHT = 22.3  WIDTH = 50.0  CONS = EXWAL1
                        AZIMUTH = 315   ..
```

```
              WINDOW HEIGHT = 2.7  WIDTH = 40.5  G-T = GLTYP1 ..

1INTPER    =SPACE    AREA = 7696.0  VOLUME = 128908.0
                     TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                     PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                     PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                     LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 3.1
                     LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                     EQUIP-SCHEDULE = YEQSCHA  EQUIPMENT-W/SQFT = 1.3
                     INF-METHOD = NONE   ..

             E-W       HEIGHT = 22.3  WIDTH = 156.0  CONS = EXWAL1
                       AZIMUTH = 315   ..

              WINDOW HEIGHT = 2.7  WIDTH = 126.4  G-T = GLTYP1 ..

              DOOR   HEIGHT = 7.0  WIDTH = 5.0  CONS = ROOFCON1 ..

2EXTPER    =SPACE    AREA = 25789.0  VOLUME = 251443.0
                     TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                     PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                     PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                     LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 3.1
                     LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                     EQUIP-SCHEDULE = YEQSCHA  EQUIPMENT-W/SQFT = 1.3
                     INF-METHOD = AIR-CHANGE  AIR-CHANGES/HR = 1.0
                     INF-SCHEDULE = YINFIL1   ..

             E-W       HEIGHT = 15.3  WIDTH = 17.0  CONS = EXWAL1
                       AZIMUTH = 270   ..

              WINDOW HEIGHT = 2.7  WIDTH = 13.8  G-T = GLTYP1 ..

             E-W       HEIGHT = 15.3  WIDTH = 96.0  CONS = EXWAL1
                       AZIMUTH = 180   ..

              WINDOW HEIGHT = 2.7  WIDTH = 77.8  G-T = GLTYP1 ..

             E-W       HEIGHT = 15.3  WIDTH = 280.0  CONS = EXWAL1
                       AZIMUTH = 135   ..

              WINDOW HEIGHT = 2.7  WIDTH = 226.8  G-T = GLTYP1 ..

             E-W       HEIGHT = 15.3  WIDTH = 548.0  CONS = EXWAL1
                       AZIMUTH = 90   ..

              WINDOW HEIGHT = 2.7  WIDTH = 443.9  G-T = GLTYP1 ..

             E-W       HEIGHT = 15.3  WIDTH = 260.0  CONS = EXWAL1
                       AZIMUTH = 45   ..

              WINDOW HEIGHT = 2.7  WIDTH = 210.6  G-T = GLTYP1 ..

             E-W       HEIGHT = 15.3  WIDTH = 382.0  CONS = EXWAL1
                       AZIMUTH = 315   ..

              WINDOW HEIGHT = 2.7  WIDTH = 309.0  G-T = GLTYP1 ..
```

```
          E-W       HEIGHT = 15.3  WIDTH = 17.0  CONS = EXWAL1
                    AZIMUTH = 225   ..

            WINDOW HEIGHT = 2.7  WIDTH = 13.8  G-T = GLTYP1 ..

2INTPER     =SPACE    AREA = 20421.0  VOLUME = 199105.0
                      TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                      PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                      PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                      LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 3.1
                      LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                      EQUIP-SCHEDULE = YEQSCHA  EQUIPMENT-W/SQFT = 1.3
                      INF-METHOD = AIR-CHANGE  AIR-CHANGES/HR = 1.0
                      INF-SCHEDULE = YINFIL1   ..

          E-W       HEIGHT = 15.3  WIDTH = 17.0  CONS = EXWAL1
                    AZIMUTH = 270   ..

            WINDOW HEIGHT = 2.7  WIDTH = 13.8  G-T = GLTYP1 ..

          E-W       HEIGHT = 15.3  WIDTH = 39.0  CONS = EXWAL1
                    AZIMUTH = 0   ..

            WINDOW HEIGHT = 2.7  WIDTH = 31.6  G-T = GLTYP1 ..

          E-W       HEIGHT = 15.3  WIDTH = 166.0  CONS = EXWAL1
                    AZIMUTH = 315   ..

            WINDOW HEIGHT = 2.7  WIDTH = 135.0  G-T = GLTYP1 ..

          E-W       HEIGHT = 15.3  WIDTH = 433.0  CONS = EXWAL1
                    AZIMUTH = 270   ..

            WINDOW HEIGHT = 2.7  WIDTH = 350.7  G-T = GLTYP1 ..

          E-W       HEIGHT = 15.3  WIDTH = 146.0  CONS = EXWAL1
                    AZIMUTH = 225   ..

            WINDOW HEIGHT = 2.7  WIDTH = 118.3  G-T = GLTYP1 ..

          E-W       HEIGHT = 15.3  WIDTH = 427.0  CONS = EXWAL1
                    AZIMUTH = 135   ..

            WINDOW HEIGHT = 2.7  WIDTH = 346.0  G-T = GLTYP1 ..

          E-W       HEIGHT = 15.3  WIDTH = 17.0  CONS = EXWAL1
                    AZIMUTH = 225   ..

            WINDOW HEIGHT = 2.7  WIDTH = 13.8  G-T = GLTYP1 ..

2MIDL       =SPACE    AREA = 40144.0  VOLUME = 391404.0
                      TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                      PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                      PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                      LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 3.1
                      LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                      EQUIP-SCHEDULE = YEQSCHA  EQUIPMENT-W/SQFT = 1.8
                      INF-METHOD = NONE   ..
```

```
       E-W        HEIGHT = 15.3   WIDTH = 14.0   CONS = EXWAL1
                  AZIMUTH = 270    ..

         WINDOW HEIGHT = 2.7   WIDTH = 11.3   G-T = GLTYP1 ..

       E-W        HEIGHT = 15.3   WIDTH = 165.0   CONS = EXWAL1
                  AZIMUTH = 315    ..

         WINDOW HEIGHT = 2.7   WIDTH = 133.7   G-T = GLTYP1 ..

       E-W        HEIGHT = 15.3   WIDTH = 70.0   CONS = EXWAL1
                  AZIMUTH = 225    ..

         WINDOW HEIGHT = 2.7   WIDTH = 56.7   G-T = GLTYP1 ..


3EXTPER    =SPACE     AREA = 25789.0  VOLUME = 251443.0
                      TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                      PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                      PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                      LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 3.1
                      LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                      EQUIP-SCHEDULE = YEQSCHA  EQUIPMENT-W/SQFT = 1.3
                      INF-METHOD = AIR-CHANGE  AIR-CHANGES/HR = 1.0
                      INF-SCHEDULE = YINFIL1    ...

       E-W        HEIGHT = 15.3   WIDTH = 17.0   CONS = EXWAL1
                  AZIMUTH = 270    ..

         WINDOW HEIGHT = 2.7   WIDTH = 13.8   G-T = GLTYP1 ..

       E-W        HEIGHT = 15.3   WIDTH = 96.0   CONS = EXWAL1
                  AZIMUTH = 180    ..

         WINDOW HEIGHT = 2.7   WIDTH = 77.8   G-T = GLTYP1 ..

       E-W        HEIGHT = 15.3   WIDTH = 280.0   CONS = EXWAL1
                  AZIMUTH = 135    ..

         WINDOW HEIGHT = 2.7   WIDTH = 226.8   G-T = GLTYP1 ..

       E-W        HEIGHT = 15.3   WIDTH = 548.0   CONS = EXWAL1
                  AZIMUTH = 90    ..

         WINDOW HEIGHT = 2.7   WIDTH = 443.9   G-T = GLTYP1 ..

       E-W        HEIGHT = 15.3   WIDTH = 260.0   CONS = EXWAL1
                  AZIMUTH = 45    ..

         WINDOW HEIGHT = 2.7   WIDTH = 210.6   G-T = GLTYP1 ..

       E-W        HEIGHT = 15.3   WIDTH = 382.0   CONS = EXWAL1
                  AZIMUTH = 315    ..

         WINDOW HEIGHT = 2.7   WIDTH = 309.4   G-T = GLTYP1 ..

       E-W        HEIGHT = 15.3   WIDTH = 17.0   CONS = EXWAL1
                  AZIMUTH = 225    ..
```

```
          WINDOW HEIGHT = 2.7  WIDTH = 13.8  G-T = GLTYP1 ..


3MIDL        =SPACE    AREA = 49416.0  VOLUME = 481806.0
                       TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                       PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                       PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                       LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 3.1
                       LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                       EQUIP-SCHEDULE = YEQSCHA  EQUIPMENT-W/SQFT = 1.8
                       INF-METHOD = NONE   ..

        E-W              HEIGHT = 15.3  WIDTH = 14.0  CONS = EXWAL1
                         AZIMUTH = 270   ..

          WINDOW HEIGHT = 2.7  WIDTH = 11.3  G-T = GLTYP1 ..

        E-W              HEIGHT = 15.3  WIDTH = 165.0  CONS = EXWAL1
                         AZIMUTH = 315   ..

          WINDOW HEIGHT = 2.7  WIDTH = 133.7  G-T = GLTYP1 ..

        E-W              HEIGHT = 15.3  WIDTH = 70.0  CONS = EXWAL1
                         AZIMUTH = 225   ..

          WINDOW HEIGHT = 2.7  WIDTH = 56.7  G-T = GLTYP1 ..


3INTPER      =SPACE    AREA = 20421.0  VOLUME = 199105.0
                       TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                       PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                       PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                       LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 3.1
                       LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                       EQUIP-SCHEDULE = YEQSCHA  EQUIPMENT-W/SQFT = 1.3
                       INF-METHOD = AIR-CHANGE  AIR-CHANGES/HR = 1.0
                       INF-SCHEDULE = YINFIL1   ..

        E-W              HEIGHT = 15.3  WIDTH = 17.0  CONS = EXWAL1
                         AZIMUTH = 270   ..

          WINDOW HEIGHT = 2.7  WIDTH = 13.8  G-T = GLTYP1 ..

        E-W              HEIGHT = 15.3  WIDTH = 39.0  CONS = EXWAL1
                         AZIMUTH = 0   ..

          WINDOW HEIGHT = 2.7  WIDTH = 31.6  G-T = GLTYP1 ..

        E-W              HEIGHT = 15.3  WIDTH = 166.0  CONS = EXWAL1
                         AZIMUTH = 315   ..

          WINDOW HEIGHT = 2.7  WIDTH = 135.0  G-T = GLTYP1 ..

        E-W              HEIGHT = 15.3  WIDTH = 433.0  CONS = EXWAL1
                         AZIMUTH = 270   ..

          WINDOW HEIGHT = 2.7  WIDTH = 350.7  G-T = GLTYP1 ..

        E-W              HEIGHT = 15.3  WIDTH = 146.0  CONS = EXWAL1
                         AZIMUTH = 225   ..
```

```
  WINDOW HEIGHT = 2.7   WIDTH = 118.3   G-T = GLTYP1 ..

E-W        HEIGHT = 15.3   WIDTH = 427.0   CONS = EXWAL1
           AZIMUTH = 135    ..

  WINDOW HEIGHT = 2.7   WIDTH = 346.0   G-T = GLTYP1 ..

E-W        HEIGHT = 15.3   WIDTH = 17.0   CONS = EXWAL1
           AZIMUTH = 225    ..

  WINDOW HEIGHT = 2.7   WIDTH = 13.8   G-T = GLTYP1 ..


4EXTPER    =SPACE    AREA = 25789.0   VOLUME = 251443.0
                     TEMPERATURE = (73.)   ZONE-TYPE = CONDITIONED
                     PEOPLE-SCHEDULE = YOCC01   AREA/PERSON = 294.0
                     PEOPLE-HG-LAT = 200.0   PEOPLE-HG-SENS = 250.0
                     LIGHTING-TYPE = REC-FLUOR-RV   LIGHTING-W/SQFT = 3.1
                     LIGHT-TO-SPACE = 1.0   LIGHTING-SCHEDULE = YLITE1
                     EQUIP-SCHEDULE = YEQSCHA   EQUIPMENT-W/SQFT = 1.3
                     INF-METHOD = AIR-CHANGE   AIR-CHANGES/HR = 1.0
                     INF-SCHEDULE = YINFIL1    ..

E-W        HEIGHT = 15.3   WIDTH = 17.0   CONS = EXWAL1
           AZIMUTH = 270    ..

  WINDOW HEIGHT = 2.7   WIDTH = 13.8   G-T = GLTYP1 ..

E-W        HEIGHT = 15.3   WIDTH = 96.0   CONS = EXWAL1
           AZIMUTH = 180    ..

  WINDOW HEIGHT = 2.7   WIDTH = 77.8   G-T = GLTYP1 ..

E-W        HEIGHT = 15.3   WIDTH = 280.0   CONS = EXWAL1
           AZIMUTH = 135    ..

  WINDOW HEIGHT = 2.7   WIDTH = 226.8   G-T = GLTYP1 ..

E-W        HEIGHT = 15.3   WIDTH = 548.0   CONS = EXWAL1
           AZIMUTH = 90    ..

  WINDOW HEIGHT = 2.7   WIDTH = 443.9   G-T = GLTYP1 ..

E-W        HEIGHT = 15.3   WIDTH = 260.0   CONS = EXWAL1
           AZIMUTH = 45    ..

  WINDOW HEIGHT = 2.7   WIDTH = 210.6   G-T = GLTYP1 ..

E-W        HEIGHT = 15.3   WIDTH = 382.0   CONS = EXWAL1
           AZIMUTH = 315    ..

  WINDOW HEIGHT = 2.7   WIDTH = 309.4   G-T = GLTYP1 ..

E-W        HEIGHT = 15.3   WIDTH = 17.0   CONS = EXWAL1
           AZIMUTH = 225    ..

  WINDOW HEIGHT = 2.7   WIDTH = 13.8   G-T = GLTYP1 ..

ROOF       HEIGHT = 257.9   WIDTH = 100.0   CONS = ROOFCON1
```

```
                TILT = 0   ..

4MIDL       =SPACE    AREA = 36103.0  VOLUME = 352004.0
                      TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                      PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                      PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                      LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 3.1
                      LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                      EQUIP-SCHEDULE = YEQSCHA  EQUIPMENT-W/SQFT = 1.8
                      EQUIPMENT-KW = 1.0  INF-METHOD = NONE   ..

   E-W          HEIGHT = 15.3  WIDTH = 14.0  CONS = EXWAL1
                AZIMUTH = 270   ..

     WINDOW HEIGHT = 2.7  WIDTH = 11.3  G-T = GLTYP1 ..

   E-W          HEIGHT = 15.3  WIDTH = 165.0  CONS = EXWAL1
                AZIMUTH = 315   ..

     WINDOW HEIGHT = 2.7  WIDTH = 133.7  G-T = GLTYP1 ..

   E-W          HEIGHT = 15.3  WIDTH = 70.0  CONS = EXWAL1
                AZIMUTH = 225   ..

     WINDOW HEIGHT = 2.7  WIDTH = 56.7  G-T = GLTYP1 ..

   ROOF         HEIGHT = 361.0  WIDTH = 100.0  CONS = ROOFCON1
                TILT = 0   ..

4INTPER     =SPACE    AREA = 20421.0  VOLUME = 199105.0
                      TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                      PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                      PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                      LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 3.1
                      LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                      EQUIP-SCHEDULE = YEQSCHA  EQUIPMENT-W/SQFT = 1.3
                      INF-METHOD = AIR-CHANGE  AIR-CHANGES/HR = 1.0
                      INF-SCHEDULE = YINFIL1   ..

   E-W          HEIGHT = 15.3  WIDTH = 17.0  CONS = EXWAL1
                AZIMUTH = 270   ..

     WINDOW HEIGHT = 2.7  WIDTH = 13.8  G-T = GLTYP1 ..

   E-W          HEIGHT = 15.3  WIDTH = 39.0  CONS = EXWAL1
                AZIMUTH = 0   ..

     WINDOW HEIGHT = 2.7  WIDTH = 31.6  G-T = GLTYP1 ..

   E-W          HEIGHT = 15.3  WIDTH = 166.0  CONS = EXWAL1
                AZIMUTH = 315   ..

     WINDOW HEIGHT = 2.7  WIDTH = 135.0  G-T = GLTYP1 ..

   E-W          HEIGHT = 15.3  WIDTH = 433.0  CONS = EXWAL1
                AZIMUTH = 270   ..

     WINDOW HEIGHT = 2.7  WIDTH = 350.7  G-T = GLTYP1 ..
```

```
           E-W       HEIGHT = 15.3  WIDTH = 146.0  CONS = EXWAL1
                     AZIMUTH = 225    ..

             WINDOW HEIGHT = 2.7  WIDTH = 118.3  G-T = GLTYP1 ..

           E-W       HEIGHT = 15.3  WIDTH = 427.0  CONS = EXWAL1
                     AZIMUTH = 135    ..

             WINDOW HEIGHT = 2.7  WIDTH = 346.0  G-T = GLTYP1 ..

           E-W       HEIGHT = 15.3  WIDTH = 17.0  CONS = EXWAL1
                     AZIMUTH = 225    ..

             WINDOW HEIGHT = 2.7  WIDTH = 13.8  G-T = GLTYP1 ..

           ROOF      HEIGHT = 204.2  WIDTH = 100.0  CONS = ROOFCON1
                     TILT = 0   ..


0INTEXTPER =SPACE   AREA = 18905.0  VOLUME = 151240.0
                    TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                    PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                    PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                    LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 3.1
                    LIGHTING-SCHEDULE = YLITE1 ·
                    EQUIP-SCHEDULE = Y24FULON7D  EQUIPMENT-W/SQFT = 1.3
                    INF-METHOD = NONE    ..

           E-W       HEIGHT = 14.0  WIDTH = 110.0  CONS = EXWAL1
                     AZIMUTH = 180    ..

             WINDOW HEIGHT = 2.7  WIDTH = 89.1  G-T = GLTYP1 ..

           E-W       HEIGHT = 14.0  WIDTH = 60.5  CONS = EXWAL1
                     AZIMUTH = 225    ..

             WINDOW HEIGHT = 2.7  WIDTH = 48.6  G-T = GLTYP1 ..

          U-W       HEIGHT = 14.0  WIDTH = 75.0  CONS = UWAL1 ..

          U-W       HEIGHT = 95.0  WIDTH = 39.0  CONS = UWAL1 ..

           E-W       HEIGHT = 14.0  WIDTH = 80.0  CONS = EXWAL1
                     AZIMUTH = 135    ..

             WINDOW HEIGHT = 2.7  WIDTH = 64.8  G-T = GLTYP1 ..

           E-W       HEIGHT = 14.0  WIDTH = 60.0  CONS = EXWAL1
                     AZIMUTH = 270    ..

             WINDOW HEIGHT = 2.7  WIDTH = 77.8  G-T = GLTYP1 ..

           ROOF      HEIGHT = 484.7  WIDTH = 39.0  CONS = ROOFCON1
                     TILT = 0   ..


END  ..
COMPUTE LOADS  ..
```

BUILDING 2700 – CLEANROOM DESIGN

(ESTIMATED HEATING & COOLING LOADS)

TRANE

PSYCHROMETRIC CHART

FORT MONMOUTH EEAP STUDY – ENTECH #4130.05

JR 6/4/96

(3) UNITS TOGETHER FIT A NOMINAL SIZE of ≈50,000 CFM w/ 20% OUTSIDE AIR @ 93°DB 72°WB

COOLING

ROOM @ 68°F (55% RH)

$Q = 4.5(50{,}000)(27.3 - 21.0) = 1.4175$ mmBTU/HR

$Q = 118.1$ TONS → 155 HP BOHN CHILLER

($\approx$ 1 KW/TON) (3) 40 (1) 35

HEATING

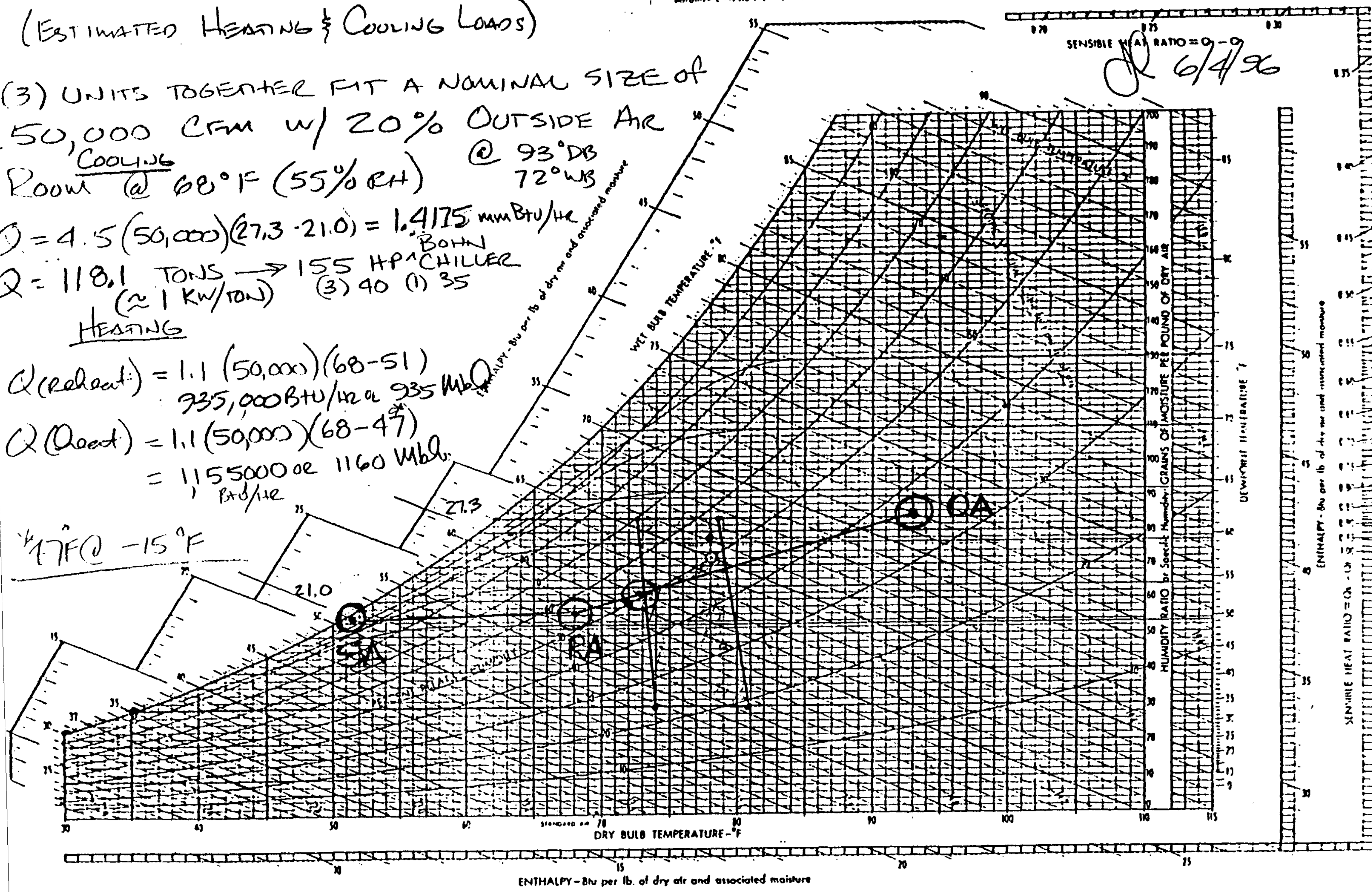
$Q$(reheat) $= 1.1(50{,}000)(68-51)$

935,000 BTU/HR or 935 MBH

$Q$(heat) $= 1.1(50{,}000)(68-47)$

$= 1155000$ or 1160 MBH BTU/HR

47°F @ -15°F



```
INPUT SYSTEMS  ..

                  $---------------------------------------$
                  $ E Z - D O E   S Y S T E M S   I N P U T $
                  $---------------------------------------$

                     $ GENERAL PROJECT DATA

TITLE  LINE-1 *         ENTECH  ENGINEERING           *
       LINE-2 *EZDOE - ELITE SOFTWARE DEVELOPMENT INC*
       LINE-3 *     READING,      PA        19603     *

       LINE-4 *4130.05 FT. MONMOUTH - MYER CENTER, NJ  *
       LINE-5 *FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1   * ..
ABORT                  ERRORS  ..
DIAGNOSTIC             WARNINGS ..
SYSTEMS-REPORT         SUMMARY=(SS-A,SS-D)
                       REPORT-FREQUENCY = MONTHLY  ..

                     $ SCHEDULES

D24FULON    =DAY-SCHEDULE  (1,24) (1.) ..
D24FULOF    =DAY-SCHEDULE  (1,24) (0.) ..
DHTSET1     =DAY-SCHEDULE  (1,24) (72.) ..
DCLSET1     =DAY-SCHEDULE  (1,24) (75.) ..
DLOTMPNOHT  =DAY-SCHEDULE  (1,24) (0.) ..
DHITMPNOCL  =DAY-SCHEDULE  (1,24) (90.) ..
SCH_1       =DAY-SCHEDULE  (1,24) (1.) ..
SCH_2       =DAY-SCHEDULE  (1,24) (0.) ..
OF_PKD      =DAY-SCHEDULE  (1,7) (1.)
                           (8,19) (0.)
                           (20,24) (1.) ..
ON_PKD      =DAY-SCHEDULE  (1,7) (0.)
                           (8,19) (1.)
                           (20,24) (0.) ..
SET_BACKD1  =DAY-SCHEDULE  (1,5) (80.)
                           (6,19) (75.)
                           (20,24) (80.) ..
SET_BACKD2  =DAY-SCHEDULE  (1,24) (80.) ..
SET_BACKD3  =DAY-SCHEDULE  (1,5) (67.)
                           (6,19) (72.)
                           (20,24) (67.) ..
SET_BACKD4  =DAY-SCHEDULE  (1,24) (67.) ..
FAN_WKD     =DAY-SCHEDULE  (1,5) (0.)
                           (6,19) (1.)
                           (20,24) (0.) ..
FAN_WKEND   =DAY-SCHEDULE  (1,24) (0.) ..

W24FULON    =WEEK-SCHEDULE  (ALL) D24FULON  ..

WFULOF247D  =WEEK-SCHEDULE  (ALL) D24FULOF  ..

WHTSET1     =WEEK-SCHEDULE  (ALL) DHTSET1  ..

WCLSET1     =WEEK-SCHEDULE  (ALL) DCLSET1  ..

WLOTMPNOHT  =WEEK-SCHEDULE  (ALL) DLOTMPNOHT  ..

WHITMPNOCL  =WEEK-SCHEDULE  (ALL) DHITMPNOCL  ..
```

```
SCH_1W      =WEEK-SCHEDULE   (ALL) SCH_1   ..

SCH_2W      =WEEK-SCHEDULE   (ALL) SCH_2   ..

OFF_PKW     =WEEK-SCHEDULE   (WD)  OF_PKD
                             (WEH) D24FULON   ..

ON_PKW      =WEEK-SCHEDULE   (WD)  ON_PKD
                             (WEH) D24FULOF   ..

SET_BACKW1 =WEEK-SCHEDULE    (WD)  SET_BACKD1
                             (WEH) SET_BACKD2   ..

SET_BACKW2 =WEEK-SCHEDULE    (WD)  SET_BACKD3
                             (WEH) SET_BACKD4   ..

FAN_WEEK    =WEEK-SCHEDULE   (WD)  FAN_WKD
                             (WEH) FAN_WKEND   ..


$ YR SCHD FULON 24HRS 7D
YFULON247D =SCHEDULE THRU DEC 31 W24FULON   ..

$ YR SCHD HEATING SEAS 1
YHTSEAS1    =SCHEDULE THRU MAY 15 W24FULON
                      THRU OCT 15 WFULOF247D
                      THRU DEC 31 W24FULON   ..

$ YR SCH COOL SEASON 1
YCLSEAS1    =SCHEDULE THRU MAY 15 WFULOF247D
                      THRU OCT 15 W24FULON
                      THRU DEC 31 WFULOF247D   ..

$ YRSCH HTSET1 72 /NONO
YHTSET1     =SCHEDULE THRU MAY 15 WHTSET1
                      THRU OCT 15 WHTSET1
                      THRU DEC 31 WHTSET1   ..

$ YRSCH COLSET 72/NON 130
YCLSET1     =SCHEDULE THRU MAY 15 WCLSET1
                      THRU OCT 15 WCLSET1
                      THRU DEC 31 WCLSET1   ..

SCH_1Y      =SCHEDULE THRU AUG 17 SCH_2W
                      THRU AUG 19 SCH_1W
                      THRU DEC 31 SCH_2W   ..

OFF_PKY     =SCHEDULE THRU DEC 31 OFF_PKW   ..

ON_PKY      =SCHEDULE THRU DEC 31 ON_PKW   ..

SET_BACKY1 =SCHEDULE THRU DEC 31 SET_BACKW1   ..

SET_BACKY2 =SCHEDULE THRU DEC 31 SET_BACKW2   ..

FAN_YEAR    =SCHEDULE THRU DEC 31 FAN_WEEK   ..
```

```
                    $ ZONE DESCRIPTION

1EXTPER    =ZONE    DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                    HEAT-TEMP-SCH = SET_BACKY2  COOL-TEMP-SCH = SET_BACKY1
                    ZONE-TYPE = CONDITIONED
                    THERMOSTAT-TYPE = PROPORTIONAL
                    BASEBOARD-CTRL = THERMOSTATIC
                    SIZING-OPTION = FROM-LOADS   ..

1INTPER    =ZONE    DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                    HEAT-TEMP-SCH = SET_BACKY2  COOL-TEMP-SCH = SET_BACKY1
                    ZONE-TYPE = CONDITIONED
                    THERMOSTAT-TYPE = PROPORTIONAL
                    BASEBOARD-CTRL = THERMOSTATIC
                    SIZING-OPTION = FROM-LOADS   ..

2EXTPER    =ZONE    DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                    HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                    ZONE-TYPE = CONDITIONED
                    THERMOSTAT-TYPE = PROPORTIONAL
                    BASEBOARD-CTRL = THERMOSTATIC
                    SIZING-OPTION = FROM-LOADS   ..

2INTPER    =ZONE    DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                    HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                    ZONE-TYPE = CONDITIONED
                    THERMOSTAT-TYPE = PROPORTIONAL
                    BASEBOARD-CTRL = THERMOSTATIC
                    SIZING-OPTION = FROM-LOADS   ..

2MIDL      =ZONE    DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                    HEAT-TEMP-SCH = SET_BACKY2  COOL-TEMP-SCH = SET_BACKY1
                    ZONE-TYPE = CONDITIONED
                    THERMOSTAT-TYPE = PROPORTIONAL
                    BASEBOARD-CTRL = THERMOSTATIC
                    SIZING-OPTION = FROM-LOADS
                    HEATING-CAPACITY = -800000.0
                    COOLING-CAPACITY = 16800000.0   ..

3EXTPER    =ZONE    DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                    HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                    ZONE-TYPE = CONDITIONED
                    THERMOSTAT-TYPE = PROPORTIONAL
                    BASEBOARD-CTRL = THERMOSTATIC
                    SIZING-OPTION = FROM-LOADS   ..

3MIDL      =ZONE    DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                    HEAT-TEMP-SCH = SET_BACKY2  COOL-TEMP-SCH = SET_BACKY1
                    ZONE-TYPE = CONDITIONED
                    THERMOSTAT-TYPE = PROPORTIONAL
                    BASEBOARD-CTRL = THERMOSTATIC
                    SIZING-OPTION = FROM-LOADS
                    HEATING-CAPACITY = -800000.0
                    COOLING-CAPACITY = 16800000.0   ..

3INTPER    =ZONE    DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                    HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                    ZONE-TYPE = CONDITIONED
                    THERMOSTAT-TYPE = PROPORTIONAL
                    BASEBOARD-CTRL = THERMOSTATIC
```

```
                       SIZING-OPTION = FROM-LOADS   ..

4EXTPER     =ZONE      DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                       HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                       ZONE-TYPE = CONDITIONED
                       THERMOSTAT-TYPE = PROPORTIONAL
                       BASEBOARD-CTRL = THERMOSTATIC
                       SIZING-OPTION = FROM-LOADS   ..

4MIDL       =ZONE      DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                       HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                       ZONE-TYPE = CONDITIONED
                       THERMOSTAT-TYPE = PROPORTIONAL
                       BASEBOARD-CTRL = THERMOSTATIC
                       SIZING-OPTION = FROM-LOADS
                       HEATING-CAPACITY = -800000.0
                       COOLING-CAPACITY = 16800000.0   ..

4INTPER     =ZONE      DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                       HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                       ZONE-TYPE = CONDITIONED
                       THERMOSTAT-TYPE = PROPORTIONAL
                       BASEBOARD-CTRL = THERMOSTATIC
                       SIZING-OPTION = FROM-LOADS   ..

0INTEXTPER =ZONE       DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                       HEAT-TEMP-SCH = SET_BACKY2  COOL-TEMP-SCH = SET_BACKY1
                       ZONE-TYPE = CONDITIONED
                       THERMOSTAT-TYPE = PROPORTIONAL
                       SIZING-OPTION = FROM-LOADS   ..

                       $ SYSTEM DESCRIPTION

1SMCAHUSZR =SYSTEM       SYSTEM-TYPE = SZRH
                         MAX-SUPPLY-T = 120.0  MIN-SUPPLY-T = 55.0
                         HEATING-SCHEDULE = YHTSEAS1
                         COOLING-SCHEDULE = YCLSEAS1  PREHEAT-T = 0.0
                         OA-CONTROL = ENTHALPY  HEATING-CAPACITY = -800000.0
                         MIN-OUTSIDE-AIR = 0.15  FAN-SCHEDULE = FAN_YEAR
                         SUPPLY-DELTA-T = 2.4  SUPPLY-KW = 0.00098
                         NIGHT-CYCLE-CTRL = CYCLE-ON-ANY  NIGHT-VENT-DT = 0.0
                         MIN-CFM-RATIO = 1.0  COOL-FT-MIN = 0.
                         PREHEAT-SOURCE = HOT-WATER  RETURN-AIR-PATH = DUCT
                         ZONE-NAMES = (1EXTPER, 1INTPER)   ..

2SPERFC     =SYSTEM      SYSTEM-TYPE = TPFC
                         MAX-SUPPLY-T = 120.0  MIN-SUPPLY-T = 55.0
                         HEATING-SCHEDULE = YHTSEAS1
                         COOLING-SCHEDULE = YCLSEAS1
                         FAN-SCHEDULE = YFULON247D  SUPPLY-DELTA-T = 0.2
                         SUPPLY-KW = 0.00007  NIGHT-CYCLE-CTRL = STAY-OFF
                         COOL-FT-MIN = 0.
                         ZONE-NAMES = (2EXTPER, 2INTPER)   ..

3[illegible]ERFC     =SYSTEM      SYSTEM-TYPE = TPFC
                         MAX-SUPPLY-T = 120.0  MIN-SUPPLY-T = 55.0
                         HEATING-SCHEDULE = YHTSEAS1
                         COOLING-SCHEDULE = YCLSEAS1
                         FAN-SCHEDULE = YFULON247D  SUPPLY-DELTA-T = 0.2
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                      SUPPLY-KW = 0.00007  NIGHT-CYCLE-CTRL = STAY-OFF
                      COOL-FT-MIN = 0.
                      ZONE-NAMES = (3EXTPER, 3INTPER)  ..

4[illegible]ERFC     =SYSTEM    SYSTEM-TYPE = TPFC
                      MAX-SUPPLY-T = 120.0  MIN-SUPPLY-T = 55.0
                      HEATING-SCHEDULE = YHTSEAS1
                      COOLING-SCHEDULE = YCLSEAS1
                      FAN-SCHEDULE = YFULON247D  SUPPLY-DELTA-T = 0.2
                      SUPPLY-KW = 0.00007  NIGHT-CYCLE-CTRL = STAY-OFF
                      COOL-FT-MIN = 0.
                      ZONE-NAMES = (4EXTPER, 4INTPER)  ..

SSZF2MID    =SYSTEM    SYSTEM-TYPE = SZRH
                      MAX-SUPPLY-T = 120.0  MIN-SUPPLY-T = 55.0
                      HEATING-SCHEDULE = YHTSEAS1
                      COOLING-SCHEDULE = YCLSEAS1  PREHEAT-T = 0.0
                      OA-CONTROL = ENTHALPY  SUPPLY-KW = 0.00007
                      MIN-OUTSIDE-AIR = 0.15  FAN-SCHEDULE = FAN_YEAR
                      SUPPLY-DELTA-T = 2.4  SUPPLY-KW = 0.00098
                      NIGHT-CYCLE-CTRL = CYCLE-ON-ANY  NIGHT-VENT-DT = 0.0
                      MIN-CFM-RATIO = 1.0  PREHEAT-SOURCE = HOT-WATER
                      RETURN-AIR-PATH = DUCT
                      ZONE-NAMES = (2MIDL)  ..

SSFZ3MID    =SYSTEM    SYSTEM-TYPE = SZRH
                      MAX-SUPPLY-T = 120.0  MIN-SUPPLY-T = 55.0
                      HEATING-SCHEDULE = YHTSEAS1
                      COOLING-SCHEDULE = YCLSEAS1  PREHEAT-T = 0.0
                      OA-CONTROL = ENTHALPY  SUPPLY-KW = 0.00007
                      MIN-OUTSIDE-AIR = 0.15  FAN-SCHEDULE = FAN_YEAR
                      SUPPLY-DELTA-T = 2.4  SUPPLY-KW = 0.00098
                      NIGHT-CYCLE-CTRL = CYCLE-ON-ANY  NIGHT-VENT-DT = 0.0
                      MIN-CFM-RATIO = 1.0  PREHEAT-SOURCE = HOT-WATER
                      RETURN-AIR-PATH = DUCT
                      ZONE-NAMES = (3MIDL)  ..

SSZF4MID    =SYSTEM    SYSTEM-TYPE = SZRH
                      MAX-SUPPLY-T = 120.0  MIN-SUPPLY-T = 55.0
                      HEATING-SCHEDULE = YHTSEAS1
                      COOLING-SCHEDULE = YCLSEAS1  PREHEAT-T = 0.0
                      OA-CONTROL = ENTHALPY  SUPPLY-KW = 0.00007
                      MIN-OUTSIDE-AIR = 0.15  FAN-SCHEDULE = FAN_YEAR
                      SUPPLY-DELTA-T = 2.4  SUPPLY-KW = 0.00098
                      NIGHT-CYCLE-CTRL = CYCLE-ON-ANY  NIGHT-VENT-DT = 0.0
                      MIN-CFM-RATIO = 1.0  PREHEAT-SOURCE = HOT-WATER
                      RETURN-AIR-PATH = DUCT
                      ZONE-NAMES = (4MIDL)  ..

0SMCAHUSZR =SYSTEM    SYSTEM-TYPE = SZRH
                      MAX-SUPPLY-T = 120.0  MIN-SUPPLY-T = 55.0
                      HEATING-SCHEDULE = YHTSEAS1
                      COOLING-SCHEDULE = YCLSEAS1  PREHEAT-T = 0.0
                      OA-CONTROL = ENTHALPY  SUPPLY-KW = 0.00007
                      MIN-OUTSIDE-AIR = 0.15  FAN-SCHEDULE = FAN_YEAR
                      SUPPLY-DELTA-T = 2.4  SUPPLY-KW = 0.00098
                      NIGHT-CYCLE-CTRL = CYCLE-ON-ANY  NIGHT-VENT-DT = 0.0
                      MIN-CFM-RATIO = 1.0  COOL-FT-MIN = 0.
                      PREHEAT-SOURCE = HOT-WATER
                      ZONE-NAMES = (0INTEXTPER)  ..
```

```
                        $ HOURLY REPORT DESCRIPTION

SY_1        =REPORT-BLOCK VARIABLE-TYPE = 1SMCAHUSZR
                          VARIABLE-LIST = (49) ..
SY_2        =REPORT-BLOCK VARIABLE-TYPE = 2SPERFC
                          VARIABLE-LIST = (49) ..
SY_3        =REPORT-BLOCK VARIABLE-TYPE = 3SPERFC
                          VARIABLE-LIST = (49) ..
SY_4        =REPORT-BLOCK VARIABLE-TYPE = 4SPERFC
                          VARIABLE-LIST = (49) ..
SY_5        =REPORT-BLOCK VARIABLE-TYPE = SSZF2MID
                          VARIABLE-LIST = (49) ..
SY_6        =REPORT-BLOCK VARIABLE-TYPE = SSFZ3MID
                          VARIABLE-LIST = (49) ..
SY_7        =REPORT-BLOCK VARIABLE-TYPE = SSZF4MID
                          VARIABLE-LIST = (49) ..
SY_8        =REPORT-BLOCK VARIABLE-TYPE = 0SMCAHUSZR
                          VARIABLE-LIST = (49) ..
Z_1         =REPORT-BLOCK VARIABLE-TYPE = 1EXTPER
                          VARIABLE-LIST = (7,6) ..
Z_2         =REPORT-BLOCK VARIABLE-TYPE = 1INTPER
                          VARIABLE-LIST = (7,6) ..
Z_3         =REPORT-BLOCK VARIABLE-TYPE = 2EXTPER
                          VARIABLE-LIST = (7,6) ..
Z_4         =REPORT-BLOCK VARIABLE-TYPE = 2INTPER
                          VARIABLE-LIST = (7,6) ..
Z_5         =REPORT-BLOCK VARIABLE-TYPE = 3EXTPER
                          VARIABLE-LIST = (7,6) ..
Z_6         =REPORT-BLOCK VARIABLE-TYPE = 3INTPER
                          VARIABLE-LIST = (7,6) ..
Z_7         =REPORT-BLOCK VARIABLE-TYPE = 4EXTPER
                          VARIABLE-LIST = (7,6) ..
Z_8         =REPORT-BLOCK VARIABLE-TYPE = 4INTPER
                          VARIABLE-LIST = (7,6) ..
Z_9         =REPORT-BLOCK VARIABLE-TYPE = 2MIDL
                          VARIABLE-LIST = (7,6) ..
Z_10        =REPORT-BLOCK VARIABLE-TYPE = 3MIDL
                          VARIABLE-LIST = (7,6) ..
Z_11        =REPORT-BLOCK VARIABLE-TYPE = 4MIDL
                          VARIABLE-LIST = (7,6) ..
Z_12        =REPORT-BLOCK VARIABLE-TYPE = 0INTEXTPER
                          VARIABLE-LIST = (7,6) ..
RS_1        = HOURLY-REPORT  REPORT-SCHEDULE = ON_PKY
                          REPORT-BLOCK = (SY_1,SY_2,SY_3,SY_4)
..
RS_2        = HOURLY-REPORT  REPORT-SCHEDULE = ON_PKY
                          REPORT-BLOCK = (SY_5,SY_6,SY_7,SY_8)
..
RS_3        = HOURLY-REPORT  REPORT-SCHEDULE = ON_PKY
                          REPORT-BLOCK = (Z_1,Z_2)
..
RS_4        = HOURLY-REPORT  REPORT-SCHEDULE = ON_PKY
                          REPORT-BLOCK = (Z_3,Z_4)
..
RS_5        = HOURLY-REPORT  REPORT-SCHEDULE = ON_PKY
                          REPORT-BLOCK = (Z_5,Z_6)
..
RS_6        = HOURLY-REPORT  REPORT-SCHEDULE = ON_PKY
```

```
                                REPORT-BLOCK = (Z_7,Z_8)
 ..
RS_7          = HOURLY-REPORT  REPORT-SCHEDULE = ON_PKY
                                REPORT-BLOCK = (Z_9,Z_10)

RS_8          = HOURLY-REPORT  REPORT-SCHEDULE = ON_PKY
                                REPORT-BLOCK = (Z_11,Z_12)
 ..
END  ..
COMPUTE SYSTEMS  ..

INPUT PLANT  ..


                  $---------------------------------------$
                  $ E Z - D O E   P L A N T S   I N P U T $
                  $---------------------------------------$

                     $ GENERAL PROJECT DATA

TITLE  LINE-1 *         ENTECH  ENGINEERING           *
       LINE-2 *EZDOE - ELITE SOFTWARE DEVELOPMENT INC*
       LINE-3 *    READING,      PA        19603      *

       LINE-4 *4130.05 FT. MONMOUTH - MYER CENTER, NJ  *
       LINE-5 *FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1   * ..

ABORT                ERRORS  ..
DIAGNOSTIC           WARNINGS ..
PRINT-REPORT         SUMMARY=(PS-C,PS-D,PS-H,BEPS)

                     REPORT-FREQUENCY = MONTHLY  ..

                     $ SCHEDULES

D24FULON    =DAY-SCHEDULE  (1,24) (1.) ..

D24FULOF    =DAY-SCHEDULE  (1,24) (0.) ..

OFF_PKDP    =DAY-SCHEDULE  (1,7) (1.)
                           (8,19) (0.)
                           (20,24) (1.) ..

ON_PKDP     =DAY-SCHEDULE  (1,7) (0.)
                           (8,19) (1.)
                           (20,24) (0.) ..


W24FULON7D =WEEK-SCHEDULE  (ALL) D24FULON  ..

W24FULOF7D =WEEK-SCHEDULE  (ALL) D24FULOF  ..

OFF_PKWP    =WEEK-SCHEDULE  (WD)  OFF_PKDP
                            (WEH) D24FULON  ..

ON_PKWP     =WEEK-SCHEDULE  (WD)  ON_PKDP
                            (WEH) D24FULOF  ..


$ YRSCH FUL ON 24HR/7D
```

```
Y24FULON7D =SCHEDULE THRU DEC 31 W24FULON7D  ..

$ YRSCH HEATING SEAS1
YHTSEAS1    =SCHEDULE THRU MAY 15 W24FULON7D
                      THRU OCT 15 W24FULOF7D
                      THRU DEC 31 W24FULON7D  ..

$ YRSCH COOL SEAS1
YCLSEAS1    =SCHEDULE THRU MAY 15 W24FULOF7D
                      THRU OCT 15 W24FULON7D
                      THRU DEC 31 W24FULOF7D  ..

TEST_1      =SCHEDULE THRU AUG 17 W24FULOF7D
                      THRU AUG 19 W24FULON7D
                      THRU DEC 31 W24FULOF7D  ..

OFF_PKYP    =SCHEDULE THRU DEC 31 OFF_PKWP  ..

ON_PKYP     =SCHEDULE THRU DEC 31 ON_PKWP  ..


                      $ EQUIPMENT DESCRIPTION

HWBLR1      =PLANT-EQUIPMENT   TYPE = HW-BOILER
                       SIZE = -999.  ..

HCCC-CHILR =PLANT-EQUIPMENT   TYPE = HERM-CENT-CHLR
                       SIZE = 7.8  ..

M COOLTWR =PLANT-EQUIPMENT   TYPE = COOLING-TWR
                       SIZE = -999.  ..

PLANT-PARAMETERS       BOILER-CONTROL = STANDBY  HW-BOILER-HIR = 1.2
                       TWR-WTR-SET-POINT = 85.  TWR-PUMP-HEAD = 50.
                       TWR-CELL-MAX-GPM = 1.0  TWR-FAN-OFF-CFM = 0.1
                       CHILLER-CONTROL = STANDBY  CHILL-WTR-T = 55.
                       CCIRC-HEAD = 100.0  CCIRC-DESIGN-T-DROP = 5.0
                       HCIRC-HEAD = 100.0  HCIRC-DESIGN-T-DROP = 25.0     ..


ENERGY-RESOURCE        RESOURCE = FUEL-OIL  ..
ENERGY-RESOURCE        RESOURCE = ELECTRICITY  ..



                      $ HOURLY REPORT DESCRIPTION

P_1         =REPORT-BLOCK VARIABLE-TYPE = HERM-CENT-CHLR
                          VARIABLE-LIST = (1,3,12,13) ..
P_2         =REPORT-BLOCK VARIABLE-TYPE = COOLING-TWR
                          VARIABLE-LIST = (8,10,20,21) ..
P_3         =REPORT-BLOCK VARIABLE-TYPE = HW-BOILER
                          VARIABLE-LIST = (1,3,4,7) ..
RP_1        = HOURLY-REPORT  REPORT-SCHEDULE = ON_PKYP
                          REPORT-BLOCK = (P_1,P_2)
 ..
RP_2        = HOURLY-REPORT  REPORT-SCHEDULE = ON_PKYP
                          REPORT-BLOCK = (P_3)
```

```
 ..
END  ..
COMPUTE PLANT ..

INPUT ECONOMICS   ..


                  $-------------------------------------------$
                  $ E Z - D O E   E C O N O M I C S  I N P U T $
                  $-------------------------------------------$

                     $ GENERAL PROJECT DATA

TITLE  LINE-1 *         ENTECH  ENGINEERING           *
       LINE-2 *EZDOE - ELITE SOFTWARE DEVELOPMENT INC*
       LINE-3 *     READING,      PA        19603     *

       LINE-4 *4130.05 FT. MONMOUTH - MYER CENTER, NJ  *
       LINE-5 *FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1   * ..

ABORT                 ERRORS  ..
DIAGNOSTIC            WARNINGS ..
ECONOMICS-REPORT      VERIFICATION=(EV-B)
                      SUMMARY=(ES-D,ES-E)   ..

                     $ SCHEDULES

D24OFPKKWH =DAY-CHARGE-SCH   (1,24)  (4OFPKKWH) ..

DHTGDEMKWH =DAY-CHARGE-SCH   (1,7)  (4OFPKKWH)
                             (8,19)  (4OFPKKWH,EONPKDMHTG)
                             (20,24)  (4OFPKKWH) ..

DCLGDEMKWH =DAY-CHARGE-SCH   (1,7)  (4OFPKKWH)
                             (8,19)  (EONPKKWH,EONPKDMCL)
                             (20,24)  (4OFPKKWH) ..

D24OFPKWH  =DAY-CHARGE-SCH   (1,24)  (4OFPKKWH) ..


WHTG       =WEEK-SCHEDULE   (WD)   DHTGDEMKWH
                            (WEH)  D24OFPKWH   ..

WCLG       =WEEK-SCHEDULE   (WD)   DCLGDEMKWH
                            (WEH)  D24OFPKWH   ..


$ YRSCH ELEC1
YELEC1     =SCHEDULE THRU MAY 31 WHTG
                     THRU SEP 30 WCLG
                     THRU DEC 31 WHTG   ..


                     $ CHARGE ASSIGNMENT

4OFPKKWH    =C-A    RESOURCE = ELECTRICITY  TYPE = ENERGY
                    UNIFORM-CHARGE = 0.0719   ..

EONPKKWH    =C-A    RESOURCE = ELECTRICITY  TYPE = ENERGY
```

```
                     UNIFORM-CHARGE = 0.0801  ..

EONPKDMHTG =C-A      RESOURCE = ELECTRICITY  TYPE = DEMAND
                     UNIFORM-CHARGE = 8.57  ..

EONPKDMCL  =C-A      RESOURCE = ELECTRICITY  TYPE = DEMAND
                     UNIFORM-CHARGE = 9.47  ..


                      $ ENERGY COST

ENERGY-COST             RESOURCE = FUEL-OIL  UNIT = 138690.
                        UNIFORM-COST = .59     ..

ENERGY-COST             RESOURCE = ELECTRICITY  UNIT = 3413.
                        ASSIGN-SCHEDULE = YELEC1     ..

END  ..
COMPUTE ECONOMICS ..
STOP  ..
```

REPORT- LS-F BUILDING MONTHLY LOAD COMPONENTS IN MBTU WEATHER FILE- NEWARK, NJ

| (UNITS=MBTU) | | WALLS | ROOFS | INT SUR | UND SUR | INFIL | GL CON | GL SOL | OCCUP | LIGHTS | EQUIP | SOURCE | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | HEATNG | -272.143 | -235.737 | 0.000 | -2.939 | -634.744 | -273.952 | 90.257 | 21.964 | 302.375 | 139.833 | 0.000 | -865.087 |
| JAN | SEN CL | -88.805 | -84.339 | 0.000 | -6.694 | -52.599 | -83.527 | 46.116 | 44.024 | 555.107 | 240.910 | 0.000 | 570.193 |
| | LAT CL | | | | | 0.000 | | | 36.621 | | 0.000 | 0.000 | 36.621 |
| | HEATNG | -218.424 | -191.017 | 0.000 | -2.457 | -533.922 | -224.334 | 102.075 | 16.750 | 234.412 | 112.097 | 0.000 | -704.819 |
| FEB | SEN CL | -87.312 | -75.890 | 0.000 | -7.318 | -69.480 | -85.655 | 61.199 | 43.069 | 543.078 | 232.517 | 0.000 | 554.207 |
| | LAT CL | | | | | 0.000 | | | 35.840 | | 0.000 | 0.000 | 35.840 |
| | HEATNG | -179.153 | -144.817 | 0.000 | -0.896 | -473.362 | -188.526 | 110.535 | 15.468 | 218.676 | 98.211 | 0.000 | -543.864 |
| MAR | SEN CL | -92.850 | -85.440 | 0.000 | -10.027 | -104.621 | -98.050 | 109.224 | 55.576 | 698.190 | 296.472 | 0.000 | 768.475 |
| | LAT CL | | | | | 1.353 | | | 46.222 | | 0.000 | 0.000 | 47.574 |
| | HEATNG | -85.349 | -65.463 | 0.000 | -0.070 | -202.330 | -90.633 | 66.229 | 7.398 | 108.121 | 49.780 | 0.000 | -212.315 |
| APR | SEN CL | -71.480 | -54.761 | 0.000 | -9.954 | -97.012 | -92.076 | 181.122 | 58.424 | 745.584 | 324.314 | 0.000 | 984.160 |
| | LAT CL | | | | | 10.991 | | | 47.597 | | 0.000 | 0.000 | 58.589 |
| | HEATNG | -42.064 | -31.012 | 0.000 | 0.000 | -93.948 | -44.586 | 37.149 | 3.678 | 56.766 | 27.623 | 0.000 | -86.394 |
| MAY | SEN CL | -36.767 | -13.580 | 0.000 | -8.090 | -63.422 | -68.791 | 252.767 | 62.335 | 801.088 | 353.208 | 0.000 | 1278.748 |
| | LAT CL | | | | | 45.072 | | | 50.670 | | 0.000 | 0.000 | 95.742 |
| | HEATNG | -5.192 | -4.771 | 0.000 | 0.000 | -8.496 | -5.522 | 4.896 | 0.530 | 8.609 | 4.277 | 0.000 | -5.668 |
| JUN | SEN CL | 12.210 | 42.748 | 0.000 | -5.639 | 17.368 | -29.364 | 266.725 | 67.590 | 871.311 | 375.945 | 0.000 | 1618.894 |
| | LAT CL | | | | | 131.621 | | | 54.193 | | 0.000 | 0.000 | 185.814 |
| | HEATNG | -0.957 | -0.927 | 0.000 | 0.000 | -2.463 | -1.053 | 0.941 | 0.137 | 2.316 | 1.200 | 0.000 | -0.807 |
| JUL | SEN CL | 37.004 | 64.735 | 0.000 | -3.864 | 44.720 | -9.099 | 278.968 | 63.686 | 830.929 | 373.892 | 0.000 | 1680.972 |
| | LAT CL | | | | | 174.480 | | | 50.873 | | 0.000 | 0.000 | 225.353 |
| | HEATNG | -4.534 | -4.023 | 0.000 | 0.000 | -5.615 | -4.698 | 2.765 | 0.388 | 6.648 | 3.810 | 0.000 | -5.259 |
| AUG | SEN CL | 18.893 | 43.115 | 0.000 | -2.618 | 25.941 | -22.592 | 255.873 | 70.525 | 908.241 | 390.393 | 0.000 | 1687.771 |
| | LAT CL | | | | | 168.708 | | | 56.571 | | 0.000 | 0.000 | 225.278 |
| | HEATNG | -13.768 | -12.033 | 0.000 | 0.000 | -22.322 | -14.263 | 10.316 | 1.427 | 21.523 | 10.213 | 0.000 | -18.907 |
| SEP | SEN CL | -29.372 | -8.509 | 0.000 | -2.428 | -46.479 | -59.584 | 216.242 | 64.243 | 829.882 | 363.324 | 0.000 | 1327.318 |
| | LAT CL | | | | | 114.185 | | | 51.602 | | 0.000 | 0.000 | 165.787 |
| | HEATNG | -64.933 | -50.966 | 0.000 | 0.000 | -121.023 | -67.644 | 41.892 | 5.425 | 83.459 | 40.759 | 0.000 | -133.032 |
| OCT | SEN CL | -69.273 | -60.550 | 0.000 | -3.516 | -87.576 | -88.728 | 157.492 | 58.247 | 747.498 | 333.778 | 0.000 | 987.371 |
| | LAT CL | | | | | 19.721 | | | 47.506 | | 0.000 | 0.000 | 67.226 |
| | HEATNG | -143.714 | -119.464 | 0.000 | -0.102 | -299.257 | -147.606 | 61.607 | 11.786 | 171.038 | 79.471 | 0.000 | -386.243 |
| NOV | SEN CL | -83.307 | -80.952 | 0.000 | -5.148 | -74.613 | -84.796 | 69.595 | 51.424 | 651.692 | 287.342 | 0.000 | 731.238 |
| | LAT CL | | | | | 17.222 | | | 42.566 | | 0.000 | 0.000 | 59.788 |
| | HEATNG | -239.997 | -202.021 | 0.000 | -1.568 | -600.226 | -243.249 | 77.138 | 20.889 | 288.299 | 129.441 | 0.000 | -771.295 |
| DEC | SEN CL | -85.360 | -86.599 | 0.000 | -6.050 | -58.126 | -81.374 | 45.636 | 45.404 | 573.762 | 252.411 | 0.000 | 599.703 |
| | LAT CL | | | | | 0.000 | | | 37.607 | | 0.000 | 0.000 | 37.607 |
| | HEATNG | -1270.234 | -1062.250 | 0.000 | -8.032 | -2997.727 | -1306.058 | 605.806 | 105.839 | 1502.228 | 696.708 | 0.000 | -3733.721 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOT | SEN CL | -576.415 | -400.023 | 0.000 | -71.346 | -565.898 | -803.641 | 1940.944 | 684.535 | 8755.893 | 3824.610 | 0.000 | 12788.659 |
| | LAT CL | | | | | 683.358 | | | 557.718 | | 0.000 | 0.000 | 1241.076 |

REPORT- SV-A SYSTEM DESIGN PARAMETERS 1SMCAHUSZR WEATHER FILE- NEWARK, NJ

| SYSTEM NAME | ALTITUDE MULTIPLIER |
|---|---|
| 1SMCAHUSZR | 1.000 |

| SUPPLY FAN (CFM ) | ELEC (KW) | DELTA-T (F) | RETURN FAN (CFM ) | ELEC (KW) | DELTA-T (F) | OUTSIDE AIR RATIO | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | HEATING CAPACITY (KBTU/HR) | COOLING EIR (BTU/BTU) | HEATING EIR (BTU/BTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 30680. | 30.066 | 2.4 | 0. | 0.000 | 0.0 | 0.150 | 1162.387 | 0.690 | -800.000 | 0.00 | 0.00 |

| ZONE NAME | SUPPLY FLOW | EXHAUST FLOW | FAN (KW) | MINIMUM FLOW RATIO | OUTSIDE AIR FLOW | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | EXTRACTION RATE (KBTU/HR) | HEATING CAPACITY (KBTU/HR) | ADDITION RATE (KBTU/HR) | MULTIPLIER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1EXTPER | 25920. | 0. | 0.000 | 1.000 | 3888. | 0.00 | 0.00 | 559.87 | 0.00 | -488.64 | 1.0 |
| 1INTPER | 4760. | 0. | 0.000 | 1.000 | 714. | 0.00 | 0.00 | 102.82 | 0.00 | -89.73 | 1.0 |

| SYSTEM NAME | ALTITUDE MULTIPLIER |
|---|---|
| 2SPERFC | 1.000 |

| SUPPLY FAN (CFM ) | ELEC (KW) | DELTA-T (F) | RETURN FAN (CFM ) | ELEC (KW) | DELTA-T (F) | OUTSIDE AIR RATIO | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | HEATING CAPACITY (KBTU/HR) | COOLING EIR (BTU/BTU) | HEATING EIR (BTU/BTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 49470. | 0.000 | 0.2 | 0. | 0.000 | 0.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 |

| ZONE NAME | SUPPLY FLOW | EXHAUST FLOW | FAN (KW) | MINIMUM FLOW RATIO | OUTSIDE AIR FLOW | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | EXTRACTION RATE (KBTU/HR) | HEATING CAPACITY (KBTU/HR) | ADDITION RATE (KBTU/HR) | MULTIPLIER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2EXTPER | 27710. | 0. | 1.940 | 1.000 | 0. | 954.80 | 0.70 | 598.41 | -1422.16 | -1428.11 | 1.0 |
| 2INTPER | 21760. | 0. | 1.523 | 1.000 | 0. | 756.73 | 0.70 | 469.97 | -1116.79 | -1121.46 | 1.0 |

REPORT- SV-A SYSTEM DESIGN PARAMETERS 3SPERFC WEATHER FILE- NEWARK, NJ

| SYSTEM NAME | ALTITUDE MULTIPLIER |
|---|---|
| 3SPERFC | 1.000 |

| SUPPLY FAN (CFM ) | ELEC (KW) | DELTA-T (F) | RETURN FAN (CFM ) | ELEC (KW) | DELTA-T (F) | OUTSIDE AIR RATIO | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | HEATING CAPACITY (KBTU/HR) | COOLING EIR (BTU/BTU) | HEATING EIR (BTU/BTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 49470. | 0.000 | 0.2 | 0. | 0.000 | 0.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 |

| ZONE NAME | SUPPLY FLOW | EXHAUST FLOW | FAN (KW) | MINIMUM FLOW RATIO | OUTSIDE AIR FLOW | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | EXTRACTION RATE (KBTU/HR) | HEATING CAPACITY (KBTU/HR) | ADDITION RATE (KBTU/HR) | MULTIPLIER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3EXTPER | 27710. | 0. | 1.940 | 1.000 | 0. | 954.80 | 0.70 | 598.44 | -1422.16 | -1428.11 | 1.0 |
| 3INTPER | 21760. | 0. | 1.523 | 1.000 | 0. | 756.73 | 0.70 | 469.97 | -1116.79 | -1121.46 | 1.0 |

REPORT- SV-A SYSTEM DESIGN PARAMETERS 4SPERFC WEATHER FILE- NEWARK, NJ

| SYSTEM NAME | ALTITUDE MULTIPLIER |
|---|---|
| 4SPERFC | 1.000 |

| SUPPLY FAN (CFM ) | ELEC (KW) | DELTA-T (F) | RETURN FAN (CFM ) | ELEC (KW) | DELTA-T (F) | OUTSIDE AIR RATIO | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | HEATING CAPACITY (KBTU/HR) | COOLING EIR (BTU/BTU) | HEATING EIR (BTU/BTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 58060. | 0.000 | 0.2 | 0. | 0.000 | 0.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 |

| ZONE NAME | SUPPLY FLOW | EXHAUST FLOW | FAN (KW) | MINIMUM FLOW RATIO | OUTSIDE AIR FLOW | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | EXTRACTION RATE (KBTU/HR) | HEATING CAPACITY (KBTU/HR) | ADDITION RATE (KBTU/HR) | MULTIPLIER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4EXTPER | 32540. | 0. | 2.278 | 1.000 | 0. | 1112.80 | 0.70 | 702.80 | -1670.05 | -1677.03 | 1.0 |
| 4INTPER | 25520. | 0. | 1.786 | 1.000 | 0. | 873.11 | 0.70 | 551.02 | -1309.76 | -1315.24 | 1.0 |

REPORT- SV-A SYSTEM DESIGN PARAMETERS SSZF2MID WEATHER FILE- NEWARK, NJ

---

| SYSTEM NAME | ALTITUDE MULTIPLIER |
|---|---|
| SSZF2MID | 1.000 |

| SUPPLY FAN (CFM ) | ELEC (KW) | DELTA-T (F) | RETURN FAN (CFM ) | ELEC (KW) | DELTA-T (F) | OUTSIDE AIR RATIO | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | HEATING CAPACITY (KBTU/HR) | COOLING EIR (BTU/BTU) | HEATING EIR (BTU/BTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 24400. | 23.912 | 2.4 | 0. | 0.000 | 0.0 | 0.150 | 925.890 | 0.690 | -1464.441 | 0.00 | 0.00 |

| ZONE NAME | SUPPLY FLOW | EXHAUST FLOW | FAN (KW) | MINIMUM FLOW RATIO | OUTSIDE AIR FLOW | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | EXTRACTION RATE (KBTU/HR) | HEATING CAPACITY (KBTU/HR) | ADDITION RATE (KBTU/HR) | MULTIPLIER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2MIDL | 24400. | 0. | 0.000 | 1.000 | 3660. | 0.00 | 0.00 | 527.04 | 0.00 | -1264.90 | 1.0 |

REPORT- SV-A SYSTEM DESIGN PARAMETERS SSFZ3MID WEATHER FILE- NEWARK, NJ

| SYSTEM NAME | ALTITUDE MULTIPLIER |
|---|---|
| SSFZ3MID | 1.000 |

| SUPPLY FAN (CFM ) | ELEC (KW) | DELTA-T (F) | RETURN FAN (CFM ) | ELEC (KW) | DELTA-T (F) | OUTSIDE AIR RATIO | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | HEATING CAPACITY (KBTU/HR) | COOLING EIR (BTU/BTU) | HEATING EIR (BTU/BTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 29850. | 29.253 | 2.4 | 0. | 0.000 | 0.0 | 0.150 | 1132.830 | 0.690 | -1791.540 | 0.00 | 0.00 |

| ZONE NAME | SUPPLY FLOW | EXHAUST FLOW | FAN (KW) | MINIMUM FLOW RATIO | OUTSIDE AIR FLOW | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | EXTRACTION RATE (KBTU/HR) | HEATING CAPACITY (KBTU/HR) | ADDITION RATE (KBTU/HR) | MULTIPLIER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3MIDL | 29850. | 0. | 0.000 | 1.000 | 4478. | 0.00 | 0.00 | 644.76 | 0.00 | -1547.42 | 1.0 |

REPORT- SV-A SYSTEM DESIGN PARAMETERS SSZF4MID WEATHER FILE- NEWARK, NJ

| SYSTEM NAME | ALTITUDE MULTIPLIER |
|---|---|
| SSZF4MID | 1.000 |

| SUPPLY FAN (CFM ) | ELEC (KW) | DELTA-T (F) | RETURN FAN (CFM ) | ELEC (KW) | DELTA-T (F) | OUTSIDE AIR RATIO | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | HEATING CAPACITY (KBTU/HR) | COOLING EIR (BTU/BTU) | HEATING EIR (BTU/BTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 30070. | 29.469 | 2.4 | 0. | 0.000 | 0.0 | 0.150 | 1135.188 | 0.691 | -1804.744 | 0.00 | 0.00 |

| ZONE NAME | SUPPLY FLOW | EXHAUST FLOW | FAN (KW) | MINIMUM FLOW RATIO | OUTSIDE AIR FLOW | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | EXTRACTION RATE (KBTU/HR) | HEATING CAPACITY (KBTU/HR) | ADDITION RATE (KBTU/HR) | MULTIPLIER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4MIDL | 30070. | 0. | 0.000 | 1.000 | 4511. | 0.00 | 0.00 | 649.51 | 0.00 | -1558.83 | 1.0 |

| SYSTEM NAME | ALTITUDE MULTIPLIER |
|---|---|
| 0SMCAHUSZR | 1.000 |

| SUPPLY FAN (CFM ) | ELEC (KW) | DELTA-T (F) | RETURN FAN (CFM ) | ELEC (KW) | DELTA-T (F) | OUTSIDE AIR RATIO | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | HEATING CAPACITY (KBTU/HR) | COOLING EIR (BTU/BTU) | HEATING EIR (BTU/BTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 17920. | 17.562 | 2.4 | 0. | 0.000 | 0.0 | 0.150 | 675.350 | 0.691 | -1075.524 | 0.00 | 0.00 |

| ZONE NAME | SUPPLY FLOW | EXHAUST FLOW | FAN (KW) | MINIMUM FLOW RATIO | OUTSIDE AIR FLOW | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | EXTRACTION RATE (KBTU/HR) | HEATING CAPACITY (KBTU/HR) | ADDITION RATE (KBTU/HR) | MULTIPLIER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0INTEXTPER | 17920. | 0. | 0.000 | 1.000 | 2688. | 0.00 | 0.00 | 387.07 | 0.00 | -928.97 | 1.0 |

ENTECH ENGINEERING          EZDOE - ELITE SOFTWARE DEVELOPMENT INC          DOE-2.1D   6/26/1996   14:55:35   SDL RUN 1
READING,   PA   19603          4130.05 FT. MONMOUTH - MYER CENTER, NJ   FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- SS-D  PLANT MONTHLY LOADS SUMMARY FOR          DEFAULT-PLANT          WEATHER FILE- NEWARK, NJ

| | - - - - - - - - C O O L I N G - - - - - - - - | | | | | | - - - - - - - - H E A T I N G - - - - - - - - | | | | | | - - - E L E C - - - | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 0.00000 | | | | | 0.000 | -806.201 | 5 | 20 | 15.F | 12.F | -3786.090 | 417143. | 1420.651 |
| FEB | 0.00000 | | | | | 0.000 | -635.981 | 20 | 3 | 10.F | 7.F | -4087.203 | 376069. | 1420.651 |
| MAR | 0.00000 | | | | | 0.000 | -432.909 | 5 | 1 | 29.F | 24.F | -2218.542 | 439182. | 1420.651 |
| APR | 0.00000 | | | | | 0.000 | -126.976 | 11 | 6 | 35.F | 35.F | -1706.639 | 419518. | 1420.651 |
| MAY | 485.67633 | 26 | 15 | 86.F | 71.F | 6298.961 | -12.614 | 4 | 2 | 40.F | 35.F | -279.126 | 433551. | 1420.651 |
| JUN | 1665.38916 | 13 | 15 | 98.F | 74.F | 7296.639 | 0.000 | | | | | 0.000 | 433468. | 1420.651 |
| JUL | 1847.39661 | 13 | 14 | 90.F | 73.F | 6964.448 | 0.000 | | | | | 0.000 | 419270. | 1420.651 |
| AUG | 1843.29443 | 18 | 15 | 94.F | 74.F | 7204.293 | 0.000 | | | | | 0.000 | 450948. | 1420.651 |
| SEP | 1157.01685 | 20 | 14 | 83.F | 72.F | 6181.995 | 0.000 | | | | | 0.000 | 420016. | 1420.651 |
| OCT | 205.22958 | 14 | 15 | 77.F | 62.F | 4954.120 | -22.207 | 26 | 6 | 43.F | 40.F | -776.548 | 412488. | 1420.651 |
| NOV | 0.00000 | | | | | 0.000 | -288.533 | 25 | 6 | 38.F | 37.F | -2276.397 | 401453. | 1420.651 |
| DEC | 0.00000 | | | | | 0.000 | -702.332 | 26 | 7 | 25.F | 24.F | -2637.494 | 416299. | 1420.651 |
| TOTAL | 7204.001 | | | | | | -3027.752 | | | | | | 5039503. | |
| MAX | | | | | | 7296.639 | | | | | | -4087.203 | | 1420.651 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/26/1996 14:55:35 SDL RUN 1

READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 1SMCAHUSZR WEATHER FILE- NEWARK, NJ

| | - - - - - - - - C O O L I N G - - - - - - - - | | | | | | - - - - - - - - H E A T I N G - - - - - - - - | | | | | | - - - E L E C - - - | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 0.00000 | | | | | 0.000 | -0.850 | 3 | 6 | 31.F | 28.F | -197.626 | 56271. | 203.731 |
| FEB | 0.00000 | | | | | 0.000 | -0.268 | 7 | 7 | 15.F | 13.F | -29.149 | 50885. | 203.731 |
| MAR | 0.00000 | | | | | 0.000 | -0.012 | 25 | 6 | 28.F | 25.F | -7.991 | 59973. | 203.731 |
| APR | 0.00000 | | | | | 0.000 | 0.000 | | | | | 0.000 | 58205. | 203.731 |
| MAY | 53.54640 | 26 | 14 | 83.F | 71.F | 879.738 | -0.057 | 10 | 17 | 87.F | 68.F | -9.676 | 60931. | 203.731 |
| JUN | 206.00967 | 13 | 13 | 95.F | 75.F | 988.951 | 0.000 | | | | | 0.000 | 60477. | 203.731 |
| JUL | 227.73489 | 19 | 14 | 85.F | 74.F | 939.398 | 0.000 | | | | | 0.000 | 58178. | 203.731 |
| AU | 237.14639 | 18 | 16 | 91.F | 77.F | 990.470 | 0.000 | | | | | 0.000 | 62318. | 203.731 |
| SEP | 142.15143 | 20 | 12 | 80.F | 75.F | 939.177 | 0.000 | | | | | 0.000 | 57874. | 203.731 |
| OCT | 18.88570 | 14 | 14 | 75.F | 61.F | 705.816 | 0.000 | | | | | 0.000 | 56284. | 203.731 |
| NOV | 0.00000 | | | | | 0.000 | 0.000 | | | | | 0.000 | 54430. | 203.731 |
| DEC | 0.00000 | | | | | 0.000 | -0.210 | 8 | 6 | 19.F | 17.F | -29.654 | 56301. | 203.731 |
| | --------- | | | | | ---------- | --------- | | | | | ---------- | -------- | ------- |
| TOTAL | 885.475 | | | | | | -1.398 | | | | | | 692103. | |
| MAX | | | | | | 990.470 | | | | | | -197.626 | | 203.731 |

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 2SPERFC WEATHER FILE- NEWARK, NJ

| | - - - - C O O L I N G - - - - | | | | | | - - - - H E A T I N G - - - - | | | | | | - - E L E C - - | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 0.00000 | | | | | 0.000 | -204.373 | 5 | 20 | 15.F | 12.F | -1172.794 | 49885. | 176.678 |
| FEB | 0.00000 | | | | | 0.000 | -161.799 | 20 | 3 | 10.F | 7.F | -1115.597 | 45103. | 176.678 |
| MAR | 0.00000 | | | | | 0.000 | -108.891 | 5 | 1 | 29.F | 24.F | -669.678 | 52738. | 176.678 |
| APR | 0.00000 | | | | | 0.000 | -31.192 | 11 | 4 | 37.F | 36.F | -479.441 | 49242. | 176.678 |
| MAY | 86.59464 | 16 | 2 | 70.F | 64.F | 1289.167 | -2.907 | 2 | 22 | 50.F | 39.F | -62.214 | 49885. | 176.678 |
| JUN | 246.58362 | 13 | 15 | 98.F | 74.F | 999.814 | 0.000 | | | | | 0.000 | 50668. | 176.678 |
| JUL | 267.83667 | 13 | 14 | 90.F | 73.F | 949.750 | 0.000 | | | | | 0.000 | 48459. | 176.678 |
| A | 258.52383 | 18 | 15 | 94.F | 74.F | 1005.357 | 0.000 | | | | | 0.000 | 52738. | 176.678 |
| SEP | 180.10347 | 7 | 15 | 82.F | 64.F | 796.730 | 0.000 | | | | | 0.000 | 49242. | 176.678 |
| OCT | 45.34973 | 14 | 15 | 77.F | 62.F | 663.986 | -3.223 | 26 | 6 | 43.F | 40.F | -155.664 | 48459. | 176.678 |
| NOV | 0.00000 | | | | | 0.000 | -67.506 | 25 | 6 | 38.F | 37.F | -630.040 | 47816. | 176.678 |
| DEC | 0.00000 | | | | | 0.000 | -182.107 | 26 | 7 | 25.F | 24.F | -686.903 | 49885. | 176.678 |
| TOTAL | 1084.992 | | | | | | -761.998 | | | | | | 594129. | |
| MAX | | | | | | 1289.167 | | | | | | -1172.794 | | 176.678 |

ENTECH ENGINEERING  EZDOE - ELITE SOFTWARE DEVELOPMENT INC  DOE-2.1D  6/26/1996  14:55:35  SDL RUN 1
READING, PA 19603  4130.05 FT. MONMOUTH - MYER CENTER, NJ  FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 3SPERFC  WEATHER FILE- NEWARK, NJ

| | COOLING | | | | | | HEATING | | | | | | ELEC | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 0.00000 | | | | | 0.000 | -204.383 | 5 | 20 | 15.F | 12.F | -1172.817 | 49885. | 176.678 |
| FEB | 0.00000 | | | | | 0.000 | -161.807 | 20 | 3 | 10.F | 7.F | -1115.619 | 45103. | 176.678 |
| MAR | 0.00000 | | | | | 0.000 | -108.895 | 5 | 1 | 29.F | 24.F | -669.697 | 52738. | 176.678 |
| APR | 0.00000 | | | | | 0.000 | -31.193 | 11 | 4 | 37.F | 36.F | -479.449 | 49242. | 176.678 |
| MAY | 86.59817 | 16 | 2 | 70.F | 64.F | 1289.196 | -2.907 | 2 | 22 | 50.F | 39.F | -62.215 | 49885. | 176.678 |
| JUN | 246.59200 | 13 | 15 | 98.F | 74.F | 999.837 | 0.000 | | | | | 0.000 | 50668. | 176.678 |
| JUL | 267.84625 | 13 | 14 | 90.F | 73.F | 949.770 | 0.000 | | | | | 0.000 | 48459. | 176.678 |
| AUG | 258.53091 | 18 | 15 | 94.F | 74.F | 1005.376 | 0.000 | | | | | 0.000 | 52738. | 176.678 |
| SEP | 180.10663 | 7 | 15 | 82.F | 64.F | 796.743 | 0.000 | | | | | 0.000 | 49242. | 176.678 |
| OCT | 45.34949 | 14 | 15 | 77.F | 62.F | 663.989 | -3.223 | 26 | 6 | 43.F | 40.F | -155.696 | 48459. | 176.678 |
| NOV | 0.00000 | | | | | 0.000 | -67.511 | 25 | 6 | 38.F | 37.F | -630.055 | 47816. | 176.678 |
| DEC | 0.00000 | | | | | 0.000 | -182.117 | 26 | 7 | 25.F | 24.F | -686.924 | 49885. | 176.678 |
| TOTAL | 1085.023 | | | | | | -762.036 | | | | | | 594129. | |
| MAX | | | | | | 1289.196 | | | | | | -1172.817 | | 176.678 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/26/1996 14:55:35 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 4SPERFC WEATHER FILE- NEWARK, NJ

| | - - - - - - - - COOLING | | | | | | - - - - - - - - HEATING | | | | | | - - - ELEC - - - | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 0.00000 | | | | | 0.000 | -345.504 | 5 | 20 | 15.F | 12.F | -1440.479 | 50332. | 177.279 |
| FEB | 0.00000 | | | | | 0.000 | -277.102 | 20 | 3 | 10.F | 7.F | -1388.293 | 45508. | 177.279 |
| MAR | 0.00000 | | | | | 0.000 | -204.234 | 5 | 1 | 29.F | 24.F | -879.167 | 53185. | 177.279 |
| APR | 0.00000 | | | | | 0.000 | -63.949 | 9 | 4 | 32.F | 27.F | -725.252 | 49675. | 177.279 |
| MAY | 79.56396 | 26 | 15 | 86.F | 71.F | 939.903 | -6.514 | 4 | 4 | 39.F | 35.F | -231.386 | 50332. | 177.279 |
| JUN | 261.59937 | 13 | 15 | 98.F | 74.F | 1180.491 | 0.000 | | | | | 0.000 | 51101. | 177.279 |
| JUL | 294.83423 | 13 | 14 | 90.F | 73.F | 1084.089 | 0.000 | | | | | 0.000 | 48906. | 177.279 |
| AUG | 274.80002 | 18 | 15 | 94.F | 74.F | 1154.626 | 0.000 | | | | | 0.000 | 53185. | 177.279 |
| SEP | 170.26332 | 7 | 14 | 82.F | 64.F | 896.833 | 0.000 | | | | | 0.000 | 49675. | 177.279 |
| OCT | 30.41889 | 14 | 15 | 77.F | 62.F | 647.320 | -15.717 | 25 | 6 | 41.F | 36.F | -500.299 | 48906. | 177.279 |
| NOV | 0.00000 | | | | | 0.000 | -145.622 | 25 | 6 | 38.F | 37.F | -792.909 | 48249. | 177.279 |
| DEC | 0.00000 | | | | | 0.000 | -307.718 | 26 | 7 | 25.F | 24.F | -906.660 | 50332. | 177.279 |
| TOTAL | 1111.481 | | | | | | -1366.360 | | | | | | 599332. | |
| MAX | | | | | | 1180.491 | | | | | | -1440.479 | | 177.279 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/26/1996 14:55:35 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR SSZF2MID WEATHER FILE- NEWARK, NJ

| | - - - COOLING - - - | | | | | | - - - HEATING - - - | | | | | | - - - ELEC - - - | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 0.00000 | | | | | 0.000 | -0.140 | 17 | 4 | 16.F | 14.F | -22.945 | 53835. | 184.421 |
| FEB | 0.00000 | | | | | 0.000 | -0.346 | 20 | 4 | 9.F | 7.F | -28.400 | 48580. | 184.421 |
| MAR | 0.00000 | | | | | 0.000 | 0.000 | | | | | 0.000 | 57080. | 184.421 |
| APR | 0.00000 | | | | | 0.000 | 0.000 | | | | | 0.000 | 54998. | 184.421 |
| MAY | 48.87048 | 26 | 14 | 83.F | 71.F | 722.120 | -0.041 | 10 | 17 | 87.F | 68.F | -7.125 | 56681. | 184.421 |
| JUN | 178.64218 | 13 | 13 | 95.F | 75.F | 790.296 | 0.000 | | | | | 0.000 | 55556. | 184.421 |
| JUL | 194.48663 | 19 | 14 | 85.F | 74.F | 767.954 | 0.000 | | | | | 0.000 | 53755. | 184.421 |
| AUG | 204.10178 | 18 | 16 | 91.F | 77.F | 795.853 | 0.000 | | | | | 0.000 | 57964. | 184.421 |
| SEP | 130.62488 | 20 | 12 | 80.F | 75.F | 775.442 | 0.000 | | | | | 0.000 | 53994. | 184.421 |
| OCT | 20.88273 | 14 | 15 | 77.F | 62.F | 600.384 | 0.000 | | | | | 0.000 | 54018. | 184.421 |
| NOV | 0.00000 | | | | | 0.000 | 0.000 | | | | | 0.000 | 52575. | 184.421 |
| DEC | 0.00000 | | | | | 0.000 | -0.007 | 27 | 5 | 21.F | 19.F | -7.429 | 53787. | 184.421 |
| TOTAL | 777.609 | | | | | | -0.535 | | | | | | 652815. | |
| MAX | | | | | | 795.853 | | | | | | -28.400 | | 184.421 |

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR SSFZ3MID WEATHER FILE- NEWARK, NJ

| | COOLING | | | | | | HEATING | | | | | | ELEC | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 0.00000 | | | | | 0.000 | -0.122 | 17 | 5 | 16.F | 14.F | -26.723 | 66437. | 226.834 |
| FEB | 0.00000 | | | | | 0.000 | -0.417 | 20 | 4 | 9.F | 7.F | -34.467 | 59946. | 226.834 |
| MAR | 0.00000 | | | | | 0.000 | 0.000 | | | | | 0.000 | 70397. | 226.834 |
| APR | 0.00000 | | | | | 0.000 | 0.000 | | | | | 0.000 | 67767. | 226.834 |
| MAY | 60.04546 | 26 | 14 | 83.F | 71.F | 884.621 | -0.050 | 10 | 17 | 87.F | 68.F | -8.944 | 69713. | 226.834 |
| JUN | 219.02705 | 13 | 13 | 95.F | 75.F | 967.301 | 0.000 | | | | | 0.000 | 68343. | 226.834 |
| JUL | 238.13353 | 19 | 14 | 85.F | 74.F | 940.303 | 0.000 | | | | | 0.000 | 66095. | 226.834 |
| AUG | 250.13724 | 18 | 16 | 91.F | 77.F | 973.837 | 0.000 | | | | | 0.000 | 71274. | 226.834 |
| SEP | 160.69432 | 20 | 12 | 80.F | 75.F | 950.956 | 0.000 | | | | | 0.000 | 66422. | 226.834 |
| OCT | 25.98936 | 14 | 15 | 77.F | 62.F | 735.752 | 0.000 | | | | | 0.000 | 66475. | 226.834 |
| NOV | 0.00000 | | | | | 0.000 | 0.000 | | | | | 0.000 | 64822. | 226.834 |
| DEC | 0.00000 | | | | | 0.000 | 0.000 | | | | | 0.000 | 66378. | 226.834 |
| TOTAL | 954.027 | | | | | | -0.589 | | | | | | 804023. | |
| MAX | | | | | | 973.837 | | | | | | -34.467 | | 226.834 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/26/1996 14:55:35 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR SSZF4MID WEATHER FILE- NEWARK, NJ

| | - - - - - - - - C O O L I N G - - - - - - - - | | | | | | - - - - - - - - H E A T I N G - - - - - - - - | | | | | | - - - E L E C - - - | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 0.00000 | | | | | 0.000 | -46.775 | 10 | 6 | 19.F | 17.F | -440.053 | 52613. | 174.320 |
| FEB | 0.00000 | | | | | 0.000 | -32.560 | 20 | 7 | 8.F | 6.F | -516.131 | 46702. | 174.320 |
| MAR | 0.00000 | | | | | 0.000 | -10.812 | 6 | 7 | 34.F | 31.F | -278.698 | 53734. | 174.320 |
| APR | 0.00000 | | | | | 0.000 | -0.642 | 11 | 6 | 35.F | 35.F | -176.844 | 51724. | 174.320 |
| MAY | 42.36839 | 26 | 14 | 83.F | 71.F | 761.691 | -0.102 | 3 | 6 | 39.F | 33.F | -18.083 | 55324. | 174.320 |
| JUN | 187.35571 | 13 | 13 | 95.F | 75.F | 906.793 | 0.000 | | | | | 0.000 | 56277. | 174.320 |
| JUL | 217.72856 | 29 | 13 | 88.F | 73.F | 856.526 | 0.000 | | | | | 0.000 | 54660. | 174.320 |
| A[illegible] | 218.72540 | 17 | 13 | 86.F | 74.F | 869.120 | 0.000 | | | | | 0.000 | 58390. | 174.320 |
| SEP | 113.27917 | 20 | 12 | 80.F | 75.F | 771.033 | 0.000 | | | | | 0.000 | 54199. | 174.320 |
| OCT | 9.77956 | 14 | 14 | 75.F | 61.F | 572.149 | -0.044 | 25 | 6 | 41.F | 36.F | -15.953 | 50534. | 174.320 |
| NOV | 0.00000 | | | | | 0.000 | -7.841 | 14 | 6 | 31.F | 27.F | -296.989 | 48790. | 174.320 |
| DEC | 0.00000 | | | | | 0.000 | -29.089 | 27 | 5 | 21.F | 19.F | -399.486 | 51670. | 174.320 |
| TOTAL | 789.237 | | | | | | -127.865 | | | | | | 634615. | |
| MAX | | | | | | 906.793 | | | | | | -516.131 | | 174.320 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/26/1996 14:55:35 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 0SMCAHUSZR WEATHER FILE- NEWARK, NJ

| | - - - - - - - - C O O L I N G - - - - - - - - | | | | | | - - - - - - - - H E A T I N G - - - - - - - - | | | | | | - - - E L E C - - - | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 0.00000 | | | | | 0.000 | -4.054 | 10 | 6 | 19.F | 17.F | -221.000 | 37887. | 100.709 |
| FEB | 0.00000 | | | | | 0.000 | -1.681 | 7 | 6 | 14.F | 12.F | -235.263 | 34243. | 100.709 |
| MAR | 0.00000 | | | | | 0.000 | -0.065 | 24 | 6 | 30.F | 26.F | -15.548 | 39339. | 100.709 |
| APR | 0.00000 | | | | | 0.000 | 0.000 | | | | | 0.000 | 38667. | 100.709 |
| MAY | 28.08884 | 26 | 14 | 83.F | 71.F | 489.535 | -0.035 | 10 | 17 | 87.F | 68.F | -5.218 | 40802. | 100.709 |
| JUN | 119.57966 | 13 | 13 | 95.F | 75.F | 569.703 | 0.000 | | | | | 0.000 | 40376. | 100.709 |
| JUL | 138.79631 | 29 | 13 | 88.F | 73.F | 532.865 | 0.000 | | | | | 0.000 | 40760. | 100.709 |
| AUG | 141.32867 | 18 | 16 | 91.F | 77.F | 562.700 | 0.000 | | | | | 0.000 | 42342. | 100.709 |
| SEP | 79.79346 | 20 | 12 | 80.F | 75.F | 515.543 | 0.000 | | | | | 0.000 | 39369. | 100.709 |
| OCT | 8.57403 | 14 | 14 | 75.F | 61.F | 383.748 | 0.000 | | | | | 0.000 | 39355. | 100.709 |
| NOV | 0.00000 | | | | | 0.000 | -0.053 | 9 | 6 | 29.F | 25.F | -16.791 | 36957. | 100.709 |
| DEC | 0.00000 | | | | | 0.000 | -1.083 | 27 | 6 | 21.F | 19.F | -137.388 | 38062. | 100.709 |
| TOTAL | 516.161 | | | | | | -6.972 | | | | | | 468189. | |
| MAX | | | | | | 569.703 | | | | | | -235.263 | | 100.709 |

REPORT- PV-A EQUIPMENT SIZES WEATHER FILE- NEWARK, NJ

| EQUIPMENT | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 4.101 | 1 | 1 | | | | | | | | | | | | | | | |
| HERM-CENT-CHLR | 7.800 | 1 | 1 | | | | | | | | | | | | | | | |
| COOLING-TWR | 2.379 | 4 | 4 | | | | | | | | | | | | | | | |

REPORT- PS-C EQUIPMENT PART LOAD OPERATION WEATHER FILE- NEWARK, NJ

| EQUIPMENT | HOURS AT PERCENT PART LOAD RATIO 0 -- 10 | -- 20 | -- 30 | -- 40 | -- 50 | -- 60 | -- 70 | -- 80 | -- 90 | -- 100 | - 110+ | TOTAL HOURS | ANNUAL LOAD (MBTU) | FALSE LOAD (MBTU) | ELEC USED (MBTU) | THERMAL USED (MBTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 2827 | 616 | 634 | 478 | 311 | 139 | 41 | 28 | 9 | 4 | 1 | 5088 | 3096.9 | 0.0 | 202.4 | 4504.8 |
| | 2827 | 616 | 634 | 478 | 311 | 139 | 41 | 28 | 9 | 4 | 1 | | | | | |
| HERM-CENT-CHLR | 1286 | 825 | 408 | 207 | 244 | 352 | 266 | 81 | 3 | 0 | 0 | 3672 | 8366.2 | 0.0 | 1972.7 | 0.0 |
| | 1286 | 825 | 408 | 207 | 244 | 352 | 266 | 81 | 3 | 0 | 0 | | | | | |
| COOLING-TWR | 1660 | 651 | 227 | 116 | 89 | 77 | 68 | 102 | 125 | 115 | 442 | 3672 | 10338.9 | 0.0 | 807.7 | 0.0 |
| | 1660 | 651 | 227 | 116 | 89 | 77 | 68 | 102 | 125 | 115 | 442 | | | | | |

HOT LOOP CIRCULATION PUMP ELECTRICAL USE = 154.2 MBTU
COLD LOOP CIRCULATION PUMP ELECTRICAL USE = 993.6 MBTU

NOTES TO TABLE

1) THE FIRST PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS
THE HOURLY LOAD DIVIDED BY THE HOURLY OPERATING CAPACITY

2) THE SECOND PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS
THE HOURLY LOAD DIVIDED BY THE TOTAL INSTALLED CAPACITY

| HEATING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HW-BOILER | 3096.9 | 100.0 |
| LOAD SATISFIED | 3096.9 | 100.0 |
| TOTAL LOAD ON PLANT | 3096.9 | |

| COOLING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HERM-CENT-CHLR | 8366.2 | 100.0 |
| LOAD SATISFIED | 8366.2 | 100.0 |
| TOTAL LOAD ON PLANT | 8366.2 | |

| ELECTRICAL LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| ELECTRICITY | 21337.4 | 100.0 |
| LOAD SATISFIED | 21337.4 | 100.0 |
| TOTAL LOAD ON PLANT | 21337.3 | |

TOWER ABOVE DESIGN TEMPERATURE OF 85.F 1 HOURS
MAXIMUM TOWER EXIT TEMPERATURE = 86.F

SUMMARY OF LOADS MET

| TYPE OF LOAD | TOTAL LOAD (MBTU) | LOAD SATISFIED (MBTU) | TOTAL OVERLOAD (MBTU) | PEAK OVERLOAD (MBTU) | HOURS OVERLOADED |
|---|---|---|---|---|---|
| HEATING LOADS | 3096.9 | 3096.9 | 0.000 | 0.000 | 0 |
| COOLING LOADS | 8366.2 | 8366.2 | 0.000 | 0.000 | 0 |
| ELECTRICAL LOADS | 21337.3 | 21337.4 | 0.000 | 0.000 | 0 |

REPORT- PS-H EQUIPMENT USE STATISTICS WEATHER FILE- NEWARK, NJ

| EQUIPMENT | AVG OPER RATIO | MAX LOAD (MBTU) | MON | DAY | HR | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 0.148 | 4.101 | 2 | 20 | 3 | 4.101 | 5088 | | | | | | | | |
| HERM-CENT-CHLR | 0.292 | 7.613 | 6 | 13 | 15 | 7.800 | 3672 | | | | | | | | |
| COOLING-TWR | 0.296 | 9.214 | 6 | 13 | 15 | 2.379 | 14688 | | | | | | | | |

| E Q U I P M E N T | SIZE (MBTU/H) | NUMBER INSTD | AVAIL | SIZE (MBTU/H) | NUMBER INSTD | AVAIL | SIZE (MBTU/H) | NUMBER INSTD | AVAIL | SIZE (MBTU/H) | NUMBER INSTD | AVAIL | SIZE (MBTU/H) | NUMBER INSTD | AVAIL | SIZE (MBTU/H) | NUMBER INSTD | AVAIL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 4.712 | 1 | 1 | | | | | | | | | | | | | | | |
| HERM-CENT-CHLR | 7.800 | 1 | 1 | | | | | | | | | | | | | | | |
| COOLING-TWR | 2.379 | 4 | 4 | | | | | | | | | | | | | | | |
| CTANK-STORAGE | 73.200 | 1 | 1 | | | | | | | | | | | | | | | |

| EQUIPMENT | HOURS AT PERCENT PART LOAD RATIO | | | | | | | | | | | TOTAL HOURS | ANNUAL LOAD (MBTU) | FALSE LOAD (MBTU) | ELEC USED (MBTU) | THERMAL USED (MBTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 -- 10 | -- 20 | -- 30 | -- 40 | -- 50 | -- 60 | -- 70 | -- 80 | -- 90 | -- 100 | - 110+ | ----- | ------ | ------ | ------ | ------ |
| HW-BOILER | 2851 | 617 | 617 | 459 | 307 | 134 | 57 | 32 | 9 | 4 | 1 | 5088 | 3532.8 | 0.0 | 229.0 | 5128.5 |
| | 2851 | 617 | 617 | 459 | 307 | 134 | 57 | 32 | 9 | 4 | 1 | | | | | |
| HERM-CENT-CHLR | 424 | 57 | 39 | 21 | 19 | 16 | 17 | 17 | 8 | 236 | 982 | 1836 | 8721.1 | 0.0 | 2401.3 | 0.0 |
| | 424 | 57 | 39 | 21 | 19 | 16 | 17 | 17 | 8 | 236 | 982 | | | | | |
| COOLING-TWR | 468 | 53 | 22 | 11 | 12 | 14 | 9 | 4 | 3 | 14 | 1226 | 1836 | 11122.4 | 0.0 | 411.5 | 0.0 |
| | 468 | 53 | 22 | 11 | 12 | 14 | 9 | 4 | 3 | 14 | 1226 | | | | | |
| CTANK-STORAGE | 166 | 152 | 172 | 266 | 212 | 169 | 218 | 216 | 111 | 28 | 28 | 1738 | 5723.4 | 0.0 | 0.0 | 0.0 |
| | 1738 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | |

HOT LOOP CIRCULATION PUMP ELECTRICAL USE = 177.2 MBTU
COLD LOOP CIRCULATION PUMP ELECTRICAL USE = 950.4 MBTU

NOTES TO TABLE

1) THE FIRST PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE HOURLY OPERATING CAPACITY

2) THE SECOND PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE TOTAL INSTALLED CAPACITY

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/12/1996 10:41:33 PDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOACO - SIM MCA H20 ONLY W/OA SCHD1
REPORT- PS-D PLANT LOADS SATISFIED WEATHER FILE- NEWARK, NJ

| HEATING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HW-BOILER | 3532.8 | 100.0 |
| LOAD SATISFIED | 3532.8 | 100.0 |
| TOTAL LOAD ON PLANT | 3532.8 | |

| COOLING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HERM-CENT-CHLR | 8721.1 | 98.2 |
| LOAD SATISFIED | 8721.1 | 98.2 |
| TOTAL LOAD ON PLANT | 8877.2 | |

| ELECTRICAL LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| ELECTRICITY | 23174.3 | 100.0 |
| LOAD SATISFIED | 23174.3 | 100.0 |
| TOTAL LOAD ON PLANT | 23174.2 | |

| STORAGE TANK USE | MBTU STORED | MBTU RETURNED | MBTU LOST | MBTU RESIDUAL |
|---|---|---|---|---|
| CTANK-STORAGE | 5798.4 | 5723.4 | 1.71 | 73.27 |

TOWER ABOVE DESIGN TEMPERATURE OF 85.F 0 HOURS

SUMMARY OF LOADS MET

| TYPE OF LOAD | TOTAL LOAD (MBTU) | LOAD SATISFIED (MBTU) | TOTAL OVERLOAD (MBTU) | PEAK OVERLOAD (MBTU) | HOURS OVERLOADED |
|---|---|---|---|---|---|
| HEATING LOADS | 3532.8 | 3532.8 | 0.000 | 0.000 | 0 |
| COOLING LOADS | 8877.2 | 8721.1 | 671.417 | 33.169 | 218 |
| ELECTRICAL LOADS | 23174.2 | 23174.3 | 0.000 | 0.000 | 0 |

REPORT- PS-H EQUIPMENT USE STATISTICS WEATHER FILE- NEWARK, NJ

| E Q U I P M E N T | AVG OPER RATIO | MAX LOAD (MBTU) | MON | DAY | HR | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 0.147 | 4.712 | 2 | 20 | 3 | 4.712 | 5088 | | | | | | | | |
| HERM-CENT-CHLR | 0.609 | 6.719 | 5 | 27 | 21 | 7.800 | 1836 | | | | | | | | |
| COOLING-TWR | 0.637 | 8.526 | 7 | 28 | 22 | 2.379 | 7344 | | | | | | | | |
| CTANK-STORAGE | 0.457 | 7.272 | 6 | 13 | 15 | 73.200 | 1738 | | | | | | | | |

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|---|---|---|
| CATEGORY OF USE | | |
| SPACE HEAT | 229.01 | 5128.55 |
| SPACE COOL | 2812.84 | 0.00 |
| HVAC AUX | 5352.46 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 10258.49 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 4521.37 | 0.00 |
| TOTAL | 23174.17 | 5128.55 |

TOTAL SITE ENERGY 28302.79 MBTU 85.9 KBTU/SQFT-YR GROSS-AREA 85.9 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 74720.99 MBTU 226.8 KBTU/SQFT-YR GROSS-AREA 226.8 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 3.7
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 2.5

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

| EQUIPMENT | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 4.712 | 1 | 1 | | | | | | | | | | | | | | | |
| HERM-CENT-CHLR | 7.800 | 1 | 1 | | | | | | | | | | | | | | | |
| COOLING-TWR | 2.379 | 4 | 4 | | | | | | | | | | | | | | | |

REPORT- PS-C EQUIPMENT PART LOAD OPERATION WEATHER FILE- NEWARK, NJ

| EQUIPMENT | HOURS AT PERCENT PART LOAD RATIO | | | | | | | | | | | TOTAL HOURS | ANNUAL LOAD (MBTU) | FALSE LOAD (MBTU) | ELEC USED (MBTU) | THERMAL USED (MBTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 -- 10 | -- 20 | -- 30 | -- 40 | -- 50 | -- 60 | -- 70 | -- 80 | -- 90 | -- 100 | - 110+ | ----- | ------ | ------ | ------ | ------ |
| HW-BOILER | 2851 | 617 | 617 | 459 | 307 | 134 | 57 | 32 | 9 | 4 | 1 | 5088 | 3532.8 | 0.0 | 229.0 | 5128.5 |
| | 2851 | 617 | 617 | 459 | 307 | 134 | 57 | 32 | 9 | 4 | 1 | | | | | |
| HERM-CENT-CHLR | 1092 | 504 | 749 | 469 | 312 | 340 | 170 | 36 | 0 | 0 | 0 | 3672 | 8802.2 | 0.0 | 1987.2 | 0.0 |
| | 1092 | 504 | 749 | 469 | 312 | 340 | 170 | 36 | 0 | 0 | 0 | | | | | |
| COOLING-TWR | 1230 | 587 | 542 | 328 | 143 | 106 | 122 | 122 | 112 | 89 | 291 | 3672 | 10789.4 | 0.0 | 813.3 | 0.0 |
| | 1230 | 587 | 542 | 328 | 143 | 106 | 122 | 122 | 112 | 89 | 291 | | | | | |

HOT LOOP CIRCULATION PUMP ELECTRICAL USE = 177.2 MBTU
COLD LOOP CIRCULATION PUMP ELECTRICAL USE = 950.4 MBTU

NOTES TO TABLE

1) THE FIRST PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE HOURLY OPERATING CAPACITY

2) THE SECOND PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE TOTAL INSTALLED CAPACITY

| HEATING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HW-BOILER | 3532.8 | 100.0 |
| LOAD SATISFIED | 3532.8 | 100.0 |
| TOTAL LOAD ON PLANT | 3532.8 | |

| COOLING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HERM-CENT-CHLR | 8802.2 | 100.0 |
| LOAD SATISFIED | 8802.2 | 100.0 |
| TOTAL LOAD ON PLANT | 8802.2 | |

| ELECTRICAL LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| ELECTRICITY | 23162.0 | 100.0 |
| LOAD SATISFIED | 23162.0 | 100.0 |
| TOTAL LOAD ON PLANT | 23161.8 | |

TOWER ABOVE DESIGN TEMPERATURE OF 85.F 1 HOURS
MAXIMUM TOWER EXIT TEMPERATURE = 86.F

SUMMARY OF LOADS MET

| TYPE OF LOAD | TOTAL LOAD (MBTU) | LOAD SATISFIED (MBTU) | TOTAL OVERLOAD (MBTU) | PEAK OVERLOAD (MBTU) | HOURS OVERLOADED |
|---|---|---|---|---|---|
| HEATING LOADS | 3532.8 | 3532.8 | 0.000 | 0.000 | 0 |
| COOLING LOADS | 8802.2 | 8802.2 | 0.000 | 0.000 | 0 |
| ELECTRICAL LOADS | 23161.8 | 23162.0 | 0.000 | 0.000 | 0 |

REPORT- PS-H EQUIPMENT USE STATISTICS WEATHER FILE- NEWARK, NJ

| EQUIPMENT | AVG OPER RATIO | MAX LOAD (MBTU) | MON | DAY | HR | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 0.147 | 4.712 | 2 | 20 | 3 | 4.712 | 5088 | | | | | | | | |
| HERM-CENT-CHLR | 0.307 | 7.282 | 8 | 18 | 15 | 7.800 | 3672 | | | | | | | | |
| COOLING-TWR | 0.309 | 8.785 | 8 | 18 | 15 | 2.379 | 14688 | | | | | | | | |

| ENERGY TYPE<br>IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|---|---|---|
| CATEGORY OF USE | | |
| SPACE HEAT | 229.01 | 5128.55 |
| SPACE COOL | 2800.53 | 0.00 |
| HVAC AUX | 5352.49 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 10258.54 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 4521.39 | 0.00 |
| TOTAL | 23161.97 | 5128.55 |

TOTAL SITE ENERGY   28290.50 MBTU   85.9 KBTU/SQFT-YR GROSS-AREA   85.9 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY   74684.07 MBTU   226.6 KBTU/SQFT-YR GROSS-AREA   226.6 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 3.7
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

| MMDDHH | HERM-CEN T-CHLR LOAD BTU/HR ----( 1) | HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----( 3) | HERM-CEN T-CHLR ENTERING COND TEM F ----(12) | HERM-CEN T-CHLR LEAVING COLD TEM F ----(13) | COOLING-TWR WATER FLOWRATE GAL/MIN ----( 8) | COOLING-TWR RANGE R ----(10) | COOLING-TWR FAN ELEC BTU/HR ----(20) | COOLING-TWR PUMP ELEC BTU/HR ----(21) |
|---|---|---|---|---|---|---|---|---|
| MONTHLY SUMMARY (JAN) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (FEB) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (MAR) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (APR) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (MAY) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 6348487. | 1259033. | 80.3 | 56.0 | 1950.0 | 7.9 | 140410. | 90465. |
| SM | 592633024. | 149378288. | 25573.0 | 20852.3 | 748800.1 | 792.5 | 46451604. | 34738696. |
| AV | 796550. | 200777. | 34.4 | 28.0 | 1006.5 | 1.1 | 62435. | 46692. |
| MONTHLY SUMMARY (JUN) | | | | | | | | |
| MN | 302722. | 142762. | 64.6 | 53.9 | 1950.0 | 0.5 | 106446. | 90465. |
| MX | 7271629. | 1508870. | 84.1 | 56.3 | 1950.0 | 9.1 | 140410. | 90465. |
| SM | 1993556224. | 434153376. | 50592.8 | 39414.0 | 1404000.1 | 2548.0 | 96531648. | 65135048. |
| AV | 2768828. | 602991. | 70.3 | 54.7 | 1950.0 | 3.5 | 134072. | 90465. |
| MONTHLY SUMMARY (JUL) | | | | | | | | |
| MN | 302722. | 142762. | 64.4 | 53.9 | 1950.0 | 0.5 | 112750. | 90465. |
| MX | 7050099. | 1439969. | 82.5 | 56.3 | 1950.0 | 8.8 | 140410. | 90465. |
| SM | 2276703488. | 485572096. | 53494.1 | 40805.5 | 1450800.1 | 2892.9 | 102251000. | 67306216. |
| AV | 3060085. | 652651. | 71.9 | 54.8 | 1950.0 | 3.9 | 137434. | 90465. |

| | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | HERM-CEN T-CHLR ENTERING COND TEM F | HERM-CEN T-CHLR LEAVING COLD TEM F | COOLING-TWR WATER FLOWRATE GAL/MIN | COOLING-TWR RANGE R | COOLING-TWR FAN ELEC BTU/HR | COOLING-TWR PUMP ELEC BTU/HR |
|---|---|---|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----(12) | ----(13) | ----( 8) | ----(10) | ----(20) | ----(21) |
| MONTHLY SUMMARY (AUG) | | | | | | | | |
| MN | 302722. | 142762. | 64.5 | 53.9 | 1950.0 | 0.5 | 107603. | 90465. |
| MX | 7281769. | 1503519. | 85.6 | 56.3 | 1950.0 | 9.1 | 140410. | 90465. |
| SM | 2224733696. | 480761472. | 53669.2 | 40786.8 | 1450800.1 | 2834.7 | 101112896. | 67306216. |
| AV | 2990234. | 646185. | 72.1 | 54.8 | 1950.0 | 3.8 | 135904. | 90465. |
| MONTHLY SUMMARY (SEP) | | | | | | | | |
| MN | 302722. | 142762. | 64.5 | 53.9 | 1950.0 | 0.5 | 106446. | 90465. |
| MX | 6235474. | 1244477. | 82.3 | 56.0 | 1950.0 | 7.7 | 140410. | 90465. |
| SM | 1422730752. | 342039488. | 49467.6 | 39209.6 | 1404000.1 | 1868.7 | 93164680. | 65135048. |
| AV | 1976015. | 475055. | 68.7 | 54.5 | 1950.0 | 2.6 | 129395. | 90465. |
| MONTHLY SUMMARY (OCT) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 5014499. | 925996. | 71.0 | 55.5 | 1950.0 | 6.2 | 140410. | 90465. |
| SM | 291873184. | 95304560. | 23507.7 | 19454.6 | 702000.1 | 426.8 | 41607896. | 32567528. |
| AV | 392303. | 128098. | 31.6 | 26.1 | 943.5 | 0.6 | 55925. | 43774. |
| MONTHLY SUMMARY (NOV) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (DEC) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| YEARLY SUMMARY | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 7281769. | 1508870. | 85.6 | 56.3 | 1950.0 | 9.1 | 140410. | 90465. |
| SM | 8802230272. | 1987209344. | 256304.4 | 200522.8 | 7160400.5 | 11363.6 | 481119712. | 332188736. |
| AV | 1004821. | 226850. | 29.3 | 22.9 | 817.4 | 1.3 | 54922. | 37921. |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/12/1996 10:22:54 PDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOACO - SIM MCA H20 ONLY W/OA SCHD1
RP_2 = HOURLY-REPORT PAGE 1- 1

| MMDDHH | HW-BOILER LOAD BTU/HR ----( 1) | HW-BOILER ELECTRIC USE BTU/HR ----( 3) | HW-BOILER FUEL USE BTU/HR ----( 4) | HW-BOILER CAPACITY RUNNING BTU/HR ----( 7) |
|---|---|---|---|---|
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 15616. | 1374. | 24498. | 4712348. |
| MX | 4230237. | 103672. | 5165285. | 4712348. |
| SM | 941701824. | 54773668. | 1334094848. | 3505984256. |
| AV | 1265728. | 73621. | 1793138. | 4712345. |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 15616. | 1374. | 24498. | 4712348. |
| MX | 4712348. | 103672. | 5654817. | 4712348. |
| SM | 757747008. | 43139200. | 1068134464. | 3166695680. |
| AV | 1127600. | 64195. | 1589486. | 4712345. |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 15616. | 1374. | 24498. | 4712348. |
| MX | 2520241. | 103672. | 3353212. | 4712348. |
| SM | 496955712. | 37184240. | 747335360. | 3505984256. |
| AV | 667951. | 49979. | 1004483. | 4712345. |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 15616. | 1374. | 24498. | 4712348. |
| MX | 1867575. | 103672. | 2630422. | 4712348. |
| SM | 149607136. | 12449244. | 231204752. | 3392888064. |
| AV | 207788. | 17291. | 321118. | 4712345. |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 316145. | 27821. | 495961. | 4712348. |
| SM | 18507140. | 1628628. | 29033524. | 1696444672. |
| AV | 24875. | 2189. | 39024. | 2280168. |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |

| | HW-BOILER LOAD BTU/HR ----( 1) | HW-BOILER ELECTRIC USE BTU/HR ----( 3) | HW-BOILER FUEL USE BTU/HR ----( 4) | HW-BOILER CAPACITY RUNNING BTU/HR ----( 7) |
|---|---|---|---|---|
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 835070. | 73486. | 1310036. | 4712348. |
| SM | 28528948. | 2510547. | 44755484. | 1809540992. |
| AV | 38345. | 3374. | 60155. | 2432179. |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 15616. | 1374. | 24498. | 4712348. |
| MX | 2366441. | 103672. | 3184438. | 4712348. |
| SM | 333158336. | 26324396. | 507959936. | 3392888064. |
| AV | 462720. | 36562. | 705500. | 4712345. |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 15616. | 1374. | 24498. | 4712348. |
| MX | 3005253. | 103672. | 3879184. | 4712348. |
| SM | 806623744. | 51001972. | 1165970432. | 3505984256. |
| AV | 1084172. | 68551. | 1567165. | 4712345. |
| YEARLY SUMMARY | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 4712348. | 103672. | 5654817. | 4712348. |
| SM | 3532829952. | 229011888. | 5128488960. | 23976409088. |
| AV | 403291. | 26143. | 585444. | 2737033. |

REPORT- EV-B COST OF FUELS AND UTILITIES

| ENERGY SOURCE | ENERGY UNIT (BTU) | UNIFORM COST /UNIT ($) | COST ESCLA-ATION RATE | MIN MNTHLY CHARGE ($) | RATE LIMIT /UNIT ($) | FIXED MNTHLY CHARG1 ($) | FIXED MNTHLY CHARG2 ($) | ASSIGN-SCHEDULE (U-NAME) | ASSIGN-CHARGE1 (U-NAME) | ASSIGN-CHARGE2 (U-NAME) |
|---|---|---|---|---|---|---|---|---|---|---|
| ELECTRIC | 3413.00 | 0.0000 | 5.000 | 0.00 | 1000000.000 | 0.00 | 0.00 | YELEC1 | | |
| FUEL-OIL | 138690.00 | 0.5900 | 5.000 | 0.00 | 1000000.000 | 0.00 | 0.00 | | | |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/12/1996 10:22:54 EDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- ES-D SUMMARY OF FUEL AND UTILITY USE AND COSTS

| MONTH | ELECTRIC UNIT= 3413.00 | FUEL-OIL UNIT= 138690.00 |
|---|---|---|
| JAN | | |
| ENERGY CONSUMPTION (UNIT/MO) | 492409. | 9619. |
| PEAK DEMAND (UNIT/HR) | 1462. | 37. |
| TOTAL COST ($) | 47932.06 | 5675.37 |
| FEB | | |
| ENERGY CONSUMPTION (UNIT/MO) | 443235. | 7702. |
| PEAK DEMAND (UNIT/HR) | 1462. | 41. |
| TOTAL COST ($) | 44396.45 | 4543.95 |
| MAR | | |
| ENERGY CONSUMPTION (UNIT/MO) | 507936. | 5389. |
| PEAK DEMAND (UNIT/HR) | 1460. | 24. |
| TOTAL COST ($) | 49035.91 | 3179.24 |
| APR | | |
| ENERGY CONSUMPTION (UNIT/MO) | 471645. | 1667. |
| PEAK DEMAND (UNIT/HR) | 1450. | 19. |
| TOTAL COST ($) | 46338.28 | 983.57 |
| MAY | | |
| ENERGY CONSUMPTION (UNIT/MO) | 569592. | 209. |
| PEAK DEMAND (UNIT/HR) | 1922. | 4. |
| TOTAL COST ($) | 57425.30 | 123.51 |
| JUN | | |
| ENERGY CONSUMPTION (UNIT/MO) | 700162. | 0. |
| PEAK DEMAND (UNIT/HR) | 1992. | 0. |
| TOTAL COST ($) | 72601.06 | 0.00 |
| JUL | | |
| ENERGY CONSUMPTION (UNIT/MO) | 706795. | 0. |
| PEAK DEMAND (UNIT/HR) | 1987. | 0. |
| TOTAL COST ($) | 72757.86 | 0.00 |
| AUG | | |
| ENERGY CONSUMPTION (UNIT/MO) | 736074. | 0. |
| PEAK DEMAND (UNIT/HR) | 1989. | 0. |
| TOTAL COST ($) | 75352.55 | 0.00 |
| SEP | | |
| ENERGY CONSUMPTION (UNIT/MO) | 661846. | 0. |
| PEAK DEMAND (UNIT/HR) | 1929. | 0. |
| TOTAL COST ($) | 68981.09 | 0.00 |
| OCT | | |
| ENERGY CONSUMPTION (UNIT/MO) | 540036. | 323. |
| PEAK DEMAND (UNIT/HR) | 1831. | 9. |
| TOTAL COST ($) | 54517.98 | 190.39 |
| NOV | | |
| ENERGY CONSUMPTION (UNIT/MO) | 465371. | 3663. |
| PEAK DEMAND (UNIT/HR) | 1459. | 23. |
| TOTAL COST ($) | 45967.96 | 2160.91 |
| DEC | | |
| ENERGY CONSUMPTION (UNIT/MO) | 491305. | 8407. |
| PEAK DEMAND (UNIT/HR) | 1462. | 28. |
| TOTAL COST ($) | 47852.72 | 4960.15 |
| TOTAL | | |
| ENERGY CONSUMPTION (UNIT/YR) | 6786406. | 36978. |
| PEAK DEMAND (UNIT/HR) | 1992. | 41. |
| TOTAL COST ($) | 683159.25 | 21817.08 |

ENTECH ENGINEERING    EZDOE - ELITE SOFTWARE DEVELOPMENT INC    DOE-2.1D 6/12/1996 10:22:54 EDL RUN 1
READING, PA 19603    4130.05 FT. MONMOUTH - MYER CENTER, NJ    FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

| MONTH | CHARGE-ASSIGNMENT (U-NAME) | LENGTH (HR/MO) | CONSUMPTION BY C-A (KWH) | ENERGY CHARGE ($) | MEASURED DEMAND (KW) | BILLING DEMAND (KW) | DEMAND CHARGE ($) | TOTAL CHARGES ($) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| | 4OFPKKWH | 744 | 492409. | 35404.21 | 1462. | 1462. | 0.00 | |
| | EONPKDMHTG | 252 | 299165. | 0.00 | 1462. | 1462. | 12527.85 | |
| | | | | | | | | 47932.06 |
| FEB | | | | | | | | |
| | 4OFPKKWH | 672 | 443235. | 31868.59 | 1462. | 1462. | 0.00 | |
| | EONPKDMHTG | 228 | 269534. | 0.00 | 1462. | 1462. | 12527.85 | |
| | | | | | | | | 44396.45 |
| MAR | | | | | | | | |
| | 4OFPKKWH | 744 | 507936. | 36520.62 | 1460. | 1460. | 0.00 | |
| | EONPKDMHTG | 276 | 325872. | 0.00 | 1460. | 1460. | 12515.29 | |
| | | | | | | | | 49035.91 |
| APR | | | | | | | | |
| | 4OFPKKWH | 720 | 471645. | 33911.25 | 1450. | 1450. | 0.00 | |
| | EONPKDMHTG | 252 | 296759. | 0.00 | 1450. | 1450. | 12427.03 | |
| | | | | | | | | 46338.28 |
| MAY | | | | | | | | |
| | 4OFPKKWH | 744 | 569592. | 40953.69 | 1922. | 1922. | 0.00 | |
| | EONPKDMHTG | 252 | 337720. | 0.00 | 1922. | 1922. | 16471.62 | |
| | | | | | | | | 57425.30 |
| JUN | | | | | | | | |
| | 4OFPKKWH | 456 | 286503. | 20599.54 | 1091. | 1091. | 0.00 | |
| | EONPKDMCL | 264 | 413660. | 0.00 | 1992. | 1992. | 18867.39 | |
| | EONPKKWH | 264 | 413660. | 33134.14 | 1992. | 1992. | 0.00 | |
| | | | | | | | | 72601.06 |
| JUL | | | | | | | | |
| | 4OFPKKWH | 504 | 325586. | 23409.62 | 1076. | 1076. | 0.00 | |
| | EONPKDMCL | 240 | 381209. | 0.00 | 1987. | 1987. | 18813.38 | |
| | EONPKKWH | 240 | 381209. | 30534.86 | 1987. | 1987. | 0.00 | |
| | | | | | | | | 72757.86 |
| AUG | | | | | | | | |
| | 4OFPKKWH | 468 | 297774. | 21409.93 | 1099. | 1099. | 0.00 | |
| | EONPKDMCL | 276 | 438300. | 0.00 | 1989. | 1989. | 18834.75 | |
| | EONPKKWH | 276 | 438300. | 35107.86 | 1989. | 1989. | 0.00 | |
| | | | | | | | | 75352.55 |
| SEP | | | | | | | | |
| | 4OFPKKWH | 468 | 280945. | 20199.94 | 1069. | 1069. | 0.00 | |
| | EONPKDMCL | 252 | 380901. | 0.00 | 1929. | 1929. | 18270.95 | |
| | EONPKKWH | 252 | 380901. | 30510.20 | 1929. | 1929. | 0.00 | |
| | | | | | | | | 68981.09 |
| OCT | | | | | | | | |
| | 4OFPKKWH | 744 | 540036. | 38828.57 | 1831. | 1831. | 0.00 | |
| | EONPKDMHTG | 240 | 310258. | 0.00 | 1831. | 1831. | 15689.41 | |
| | | | | | | | | 54517.98 |
| NOV | | | | | | | | |
| | 4OFPKKWH | 720 | 465371. | 33460.16 | 1459. | 1459. | 0.00 | |
| | EONPKDMHTG | 240 | 283017. | 0.00 | 1459. | 1459. | 12507.81 | |
| | | | | | | | | 45967.96 |

REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

-CONTINUED-

| MONTH | CHARGE-ASSIGNMENT (U-NAME) | LENGTH (HR/MO) | CONSUMPTION BY C-A (KWH) | ENERGY CHARGE ($) | MEASURED DEMAND (KW) | BILLING DEMAND (KW) | DEMAND CHARGE ($) | TOTAL CHARGES ($) |
|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | |
| | 4OFPKKWH | 744 | 491305. | 35324.86 | 1462. | 1462. | 0.00 | |
| | EONPKDMHTG | 252 | 298773. | 0.00 | 1462. | 1462. | 12527.85 | |
| | | | | | | | | 47852.72 |
| TOTAL | | | 6786406. | 501178.03 | | | 181981.19 | 683159.25 |

```
INPUT LOADS  ..

                   $-----------------------------------$
                   $ E Z - D O E   L O A D S  I N P U T $
                   $-----------------------------------$

                      $ GENERAL PROJECT DATA

TITLE  LINE-1 *        ENTECH  ENGINEERING          *
       LINE-2 *EZDOE - ELITE SOFTWARE DEVELOPMENT INC*
       LINE-3 *    READING,      PA        19603     *

       LINE-4 *4130.05 FT. MONMOUTH - MYER CENTER, NJ  *
       LINE-5 *FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24* ..

ABORT                ERRORS  ..
DIAGNOSTIC           WARNINGS ..
LOADS-REPORT         SUMMARY=(LS-F)   ..
BUILDING-LOCATION    ALTITUDE = 15.
                     X-REF = 0.0
                     Y-REF = 0.0   ..
RUN-PERIOD           JAN 1 1994 THRU DEC 31 1994   ..


                      $ SCHEDULES

D24FULON    =DAY-SCHEDULE  (1,24) (1.) ..

D[illegible]FULON12 =DAY-SCHEDULE  (1,6) (0.)
                           (7,18) (1.)
                           (19,24) (0.) ..

D24FULOFF   =DAY-SCHEDULE  (1,24) (0.) ..

DOCCUP01    =DAY-SCHEDULE  (1,6) (0.07)
                           (7,8) (0.7,0.9)
                           (9,14) (1.)
                           (15,18) (0.9,0.7,0.25,0.15)
                           (19,24) (0.07) ..

d24occofhr =DAY-SCHEDULE  (1,24) (0.07) ..

DWKLITE1    =DAY-SCHEDULE  (1,6) (0.1)
                           (7,8) (0.5,0.9)
                           (9,14) (1.)
                           (15,18) (0.9,0.7,0.25,0.15)
                           (19,24) (0.1) ..

DNOTLITE1   =DAY-SCHEDULE  (1,24) (0.1) ..

DINFILWIN1 =DAY-SCHEDULE  (1,24) (0.8) ..

D[illegible]FILSUM1 =DAY-SCHEDULE  (1,24) (0.8) ..

DEQPAWKDAY =DAY-SCHEDULE  (1,7) (0.15)
                           (8,19) (0.5)
                           (20,24) (0.15) ..
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DEQPAWKEND =DAY-SCHEDULE  (1,24) (0.15) ..


W24FULON7D =WEEK-SCHEDULE  (ALL) D24FULON  ..

WOCC01     =WEEK-SCHEDULE  (WD)  DOCCUP01
                           (WEH) d24occofhr  ..

WLITE1     =WEEK-SCHEDULE  (WD)  DWKLITE1
                           (WEH) DNOTLITE1  ..

WINFILWIN1 =WEEK-SCHEDULE  (ALL) DINFILWIN1  ..

WINFILSUM1 =WEEK-SCHEDULE  (ALL) DINFILSUM1  ..

WEQUIPSCHA =WEEK-SCHEDULE  (WD)  DEQPAWKDAY
                           (WEH) DEQPAWKEND  ..


$ 24 HR FULON 7D/WK WK1
Y24FULON7D =SCHEDULE THRU DEC 31 W24FULON7D  ..

$ Y LOADS OCCUP SCH 01
YOCC01     =SCHEDULE THRU DEC 31 WOCC01  ..

$ YR LIGHTING SCH 1/.1
YLITE1     =SCHEDULE THRU DEC 31 WLITE1  ..

$ YR INFIL SCHD 1
YINFIL1    =SCHEDULE THRU MAY 15 WINFILWIN1
                     THRU OCT 15 WINFILSUM1
                     THRU DEC 31 WINFILWIN1  ..

$ YR SCH EQUIP SCHA 50/15
YEQUIPSCHA =SCHEDULE THRU DEC 31 WEQUIPSCHA  ..


                     $ CONSTRUCTION TYPES



 $ ROOF CON1 MAIN ROOF
ROOFCON1 =CONSTRUCTION   U-VALUE =  0.100  ..

 $ EXTERIOR WAL1 TYP
EXWAL1   =CONSTRUCTION   U-VALUE =  0.080  ..

 $ INTERIOR WALL 1 TYP
INTWAL1  =CONSTRUCTION   U-VALUE =  0.480
                          ABSORPTANCE = 0.000  ..

 $ EXTERIOR DOOR TYP 01 U=.4
E[illegible]DR01  =CONSTRUCTION   U-VALUE =  0.400  ..

 $ UNDERGRND WALL 1
UWAL1    =CONSTRUCTION   U-VALUE =  0.100
                          ABSORPTANCE = 0.500  ..
```

```
GLTYP1    =GLASS-TYPE      SHADING-COEF = 0.560
                           PANES = 1
                           GLASS-CONDUCTANCE =  0.520  ..


                      $ SPACE DESCRIPTION

0STMUH      =SPACE    AREA = 23230.0  VOLUME = 185840.0
                      TEMPERATURE = (68.)  ZONE-TYPE = CONDITIONED
                      PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                      PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                      LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 1.0
                      LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                      EQUIP-SCHEDULE = YEQUIPSCHA  INF-METHOD = AIR-CHANGE
                      AIR-CHANGES/HR = 1.0  INF-SCHEDULE = YINFIL1   ..

               E-W      HEIGHT = 14.0  WIDTH = 105.0  CONS = EXWAL1
                        AZIMUTH = 90   ..

               E-W      HEIGHT = 14.0  WIDTH = 100.0  CONS = EXWAL1
                        AZIMUTH = 270   ..

              U-W      HEIGHT = 14.0  WIDTH = 344.0  CONS = UWAL1 ..

              U-W      HEIGHT = 232.3  WIDTH = 100.0  CONS = UWAL1 ..


1STMUH      =SPACE    AREA = 17842.0  VOLUME = 298854.0
                      TEMPERATURE = (68.)  ZONE-TYPE = CONDITIONED
                      PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                      PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                      LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 1.0
                      LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                      EQUIP-SCHEDULE = YEQUIPSCHA  INF-METHOD = AIR-CHANGE
                      AIR-CHANGES/HR = 1.0  INF-SCHEDULE = YINFIL1   ..

               E-W      HEIGHT = 22.3  WIDTH = 10.0  CONS = EXWAL1
                        AZIMUTH = 0   ..

               E-W      HEIGHT = 22.3  WIDTH = 167.0  CONS = EXWAL1
                        AZIMUTH = 270   ..

                 WINDOW HEIGHT = 2.7  WIDTH = 135.3  G-T = GLTYP1 ..

               E-W      HEIGHT = 22.3  WIDTH = 24.0  CONS = EXWAL1
                        AZIMUTH = 225   ..

                 WINDOW HEIGHT = 2.7  WIDTH = 19.4  G-T = GLTYP1 ..

               E-W      HEIGHT = 22.3  WIDTH = 30.0  CONS = EXWAL1
                        AZIMUTH = 135   ..

                 WINDOW HEIGHT = 2.7  WIDTH = 16.2  G-T = GLTYP1 ..

1STMDX      =SPACE    AREA = 15561.0  VOLUME = 550167.0
                      TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                      PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
```

```
                    PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                    LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 2.0
                    LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                    EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 1.0
                    INF-METHOD = NONE   ..

         E-W        HEIGHT = 22.3  WIDTH = 24.0  CONS = EXWAL1
                    AZIMUTH = 45   ..

           WINDOW HEIGHT = 2.7  WIDTH = 19.4  G-T = GLTYP1 ..

         E-W        HEIGHT = 22.3  WIDTH = 364.0  CONS = EXWAL1
                    AZIMUTH = 315   ..

           WINDOW HEIGHT = 2.7  WIDTH = 295.0  G-T = GLTYP1 ..

         E-W        HEIGHT = 22.3  WIDTH = 20.0  CONS = EXWAL1
                    AZIMUTH = 135   ..

           WINDOW HEIGHT = 2.7  WIDTH = 16.2  G-T = GLTYP1 ..

         E-W        HEIGHT = 37.6  WIDTH = 112.0  CONS = EXWAL1
                    AZIMUTH = 90   ..

         E-W        HEIGHT = 37.6  WIDTH = 90.0  CONS = EXWAL1
                    AZIMUTH = 135   ..       .

           DOOR     HEIGHT = 7.0  WIDTH = 5.0  CONS = EXTDR01 ..

         E-W        HEIGHT = 37.6  WIDTH = 112.0  CONS = EXWAL1
                    AZIMUTH = 270   ..

           DOOR     HEIGHT = 7.0  WIDTH = 5.0  CONS = EXTDR01 ..

         ROOF       HEIGHT = 110.0  WIDTH = 70.0  CONS = ROOFCON1
                    TILT = 0   ..

2STMDX     =SPACE   AREA = 17634.0  VOLUME = 171932.0
                    TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                    PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                    PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                    LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 4.0
                    LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                    EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 15.0
                    INF-METHOD = NONE   ..

3STMDX     =SPACE   AREA = 11911.0  VOLUME = 115179.0
                    TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                    PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                    PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                    LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 5.0
                    LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                    EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 10.0
                    INF-METHOD = NONE   ..

4STMDXCLNR =SPACE   AREA = 6966.0  VOLUME = 67361.0
                    TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
```

```
            PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
            PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
            LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 5.0
            LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
            EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 15.0
            INF-METHOD = NONE   ..

        ROOF     HEIGHT = 162.0  WIDTH = 43.0  CONS = ROOFCON1
                 TILT = 0   ..

4STMOFFCLB =SPACE   AREA = 5117.0  VOLUME = 49481.4
            TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
            PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
            PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
            LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 5.0
            LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
            EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 5.0
            INF-METHOD = NONE   ..

        ROOF     HEIGHT = 119.0  WIDTH = 43.0  CONS = ROOFCON1
                 TILT = 0   ..

0LSTMDX    =SPACE   AREA = 20043.0  VOLUME = 160344.0
            TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
            PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
            PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
            LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 2.0
            LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
            EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 2.0
            INF-METHOD = NONE   ..

        E-W      HEIGHT = 14.0  WIDTH = 60.0  CONS = EXWAL1
                 AZIMUTH = 225   ..

          WINDOW HEIGHT = 2.7  WIDTH = 48.6  G-T = GLTYP1 ..

          WINDOW HEIGHT = 2.7  WIDTH = 162.0  G-T = GLTYP1 ..

        E-W      HEIGHT = 14.0  WIDTH = 132.0  CONS = EXWAL1
                 AZIMUTH = 90   ..

        E-W      HEIGHT = 14.0  WIDTH = 96.0  CONS = EXWAL1
                 AZIMUTH = 180   ..

          WINDOW HEIGHT = 2.7  WIDTH = 68.0  G-T = GLTYP1 ..

        E-W      HEIGHT = 14.0  WIDTH = 60.0  CONS = EXWAL1
                 AZIMUTH = 225   ..

          WINDOW HEIGHT = 2.7  WIDTH = 226.8  G-T = GLTYP1 ..

          WINDOW HEIGHT = 2.7  WIDTH = 48.6  G-T = GLTYP1 ..

        E-W      HEIGHT = 14.0  WIDTH = 60.0  CONS = EXWAL1
                 AZIMUTH = 225   ..

          WINDOW HEIGHT = 2.7  WIDTH = 226.8  G-T = GLTYP1 ..
```

```
    WINDOW HEIGHT = 2.7   WIDTH = 48.6   G-T = GLTYP1 ..

  ROOF      HEIGHT = 200.0  WIDTH = 60.5  CONS = ROOFCON1
            TILT = 0    ..

  E-W       HEIGHT = 14.0  WIDTH = 84.0  CONS = EXWAL1
            AZIMUTH = 90    ..

    WINDOW HEIGHT = 2.7   WIDTH = 68.0   G-T = GLTYP1 ..

  E-W       HEIGHT = 14.0  WIDTH = 60.0  CONS = EXWAL1
            AZIMUTH = 45    ..

    WINDOW HEIGHT = 2.7   WIDTH = 226.8   G-T = GLTYP1 ..

    WINDOW HEIGHT = 2.7   WIDTH = 48.6   G-T = GLTYP1 ..

  E-W       HEIGHT = 14.0  WIDTH = 200.0  CONS = EXWAL1
            AZIMUTH = 135    ..

    WINDOW HEIGHT = 2.7   WIDTH = 48.6   G-T = GLTYP1 ..

    WINDOW HEIGHT = 2.7   WIDTH = 162.0   G-T = GLTYP1 ..

 U-W      HEIGHT = 14.0   WIDTH = 73.0   CONS = UWAL1 ..

 U-W      HEIGHT = 399.6   WIDTH = 100.0   CONS = UWAL1 ..

  E-W       HEIGHT = 14.0  WIDTH = 60.0  CONS = EXWAL1
            AZIMUTH = 45    ..

    WINDOW HEIGHT = 2.7   WIDTH = 48.6   G-T = GLTYP1 ..

  E-W       HEIGHT = 14.0  WIDTH = 132.0  CONS = EXWAL1
            AZIMUTH = 90    ..

    WINDOW HEIGHT = 2.7   WIDTH = 106.9   G-T = GLTYP1 ..

  ROOF      HEIGHT = 399.6  WIDTH = 100.0  CONS = ROOFCON1
            TILT = 0    ..

 U-W      HEIGHT = 14.0   WIDTH = 73.0   CONS = UWAL1 ..

 U-W      HEIGHT = 399.6   WIDTH = 100.0   CONS = UWAL1 ..


END  ..
COMPUTE LOADS  ..

INPUT SYSTEMS  ..


          $---------------------------------------$
          $ E Z - D O E   S Y S T E M S   I N P U T $
          $---------------------------------------$

            $ GENERAL PROJECT DATA

TITLE  LINE-1 *         ENTECH  ENGINEERING         *
       LINE-2 *EZDOE - ELITE SOFTWARE DEVELOPMENT INC*
```

```
        LINE-3 *     READING,       PA        19603      *

        LINE-4 *4130.05 FT. MONMOUTH - MYER CENTER, NJ  *
        LINE-5 *FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24* ..
ABORT                ERRORS  ..
DIAGNOSTIC           WARNINGS ..
SYSTEMS-REPORT       VERIFICATION=(SV-A)
                     SUMMARY=(SS-A,SS-B,SS-D)
                     REPORT-FREQUENCY = MONTHLY  ..

                      $ SCHEDULES

DS24ON1     =DAY-SCHEDULE  (1,24) (1.) ..
DS24OFF0    =DAY-SCHEDULE  (1,24) (0.) ..
DLOTMPNOHT  =DAY-SCHEDULE  (1,24) (0.) ..
DHITMPNOCL  =DAY-SCHEDULE  (1,24) (130.) ..
DSHTSET1    =DAY-SCHEDULE  (1,24) (72.) ..
DSCLGSET1   =DAY-SCHEDULE  (1,24) (75.) ..
D4CLNRMT68  =DAY-SCHEDULE  (1,24) (68.) ..
OFFPK_D     =DAY-SCHEDULE  (1,7) (1.)
                           (8,19) (0.)
                           (20,24) (1.) ..
ONPK_D      =DAY-SCHEDULE  (1,7) (0.)
                           (8,19) (1.)
                           (20,24) (0.) ..
OFFPK_END   =DAY-SCHEDULE  (1,24) (1.) ..

W24FULON    =WEEK-SCHEDULE  (ALL) DS24ON1  ..

WHTSET1     =WEEK-SCHEDULE  (ALL) DSHTSET1  ..

WCLSET1     =WEEK-SCHEDULE  (ALL) DSCLGSET1  ..

WLOTMPNOHT  =WEEK-SCHEDULE  (ALL) DLOTMPNOHT  ..

WHITMPNOCL  =WEEK-SCHEDULE  (ALL) DHITMPNOCL  ..

W24FULOFF   =WEEK-SCHEDULE  (ALL) DS24OFF0  ..

W4CLNRMT68  =WEEK-SCHEDULE  (ALL) D4CLNRMT68  ..

OFFPK_W     =WEEK-SCHEDULE  (WD)  OFFPK_D
                            (WEH) OFFPK_END  ..

ONPK_W      =WEEK-SCHEDULE  (WD)  ONPK_D
                            (WEH) DS24OFF0  ..


$ YR SCHD FULON 24HRS 7D
YSON247D    =SCHEDULE THRU DEC 31 W24FULON  ..

$ YR SCHD HEATING SEAS 1
YSHTSEAS1   =SCHEDULE THRU MAY 15 W24FULON
                      THRU OCT 15 W24FULOFF
                      THRU DEC 31 W24FULON  ..

$ YR SCH COOL SEASON 1
YSCLSEAS1   =SCHEDULE THRU MAY 15 W24FULOFF
                      THRU OCT 15 W24FULON
                      THRU DEC 31 W24FULOFF  ..
```

```
$ YRSCH HTSET1 72 /NON0
YHTSET1     =SCHEDULE THRU MAY 15 WHTSET1
                      THRU OCT 15 WHTSET1
                      THRU DEC 31 WHTSET1  ..

$ YRSCH COLSET 72/NON 130
YCLSET1     =SCHEDULE THRU MAY 15 WCLSET1
                      THRU OCT 15 WCLSET1
                      THRU DEC 31 WCLSET1  ..

$ YR SCHD 4THCLNRM T=68
Y4CLNRMT68 =SCHEDULE THRU DEC 31 W4CLNRMT68  ..

OFFPK_YR    =SCHEDULE THRU DEC 31 OFFPK_W  ..

ONPK_YR     =SCHEDULE THRU DEC 31 ONPK_W  ..


                     $ ZONE DESCRIPTION

0STMUH      =ZONE    DESIGN-HEAT-T = 68.0  DESIGN-COOL-T = 90.0
                     HEAT-TEMP-SCH = Y4CLNRMT68  ZONE-TYPE = CONDITIONED
                     THERMOSTAT-TYPE = PROPORTIONAL
                     SIZING-OPTION = FROM-LOADS  ...

1STMUH      =ZONE    DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 90.0
                     HEAT-TEMP-SCH = YHTSET1  ZONE-TYPE = CONDITIONED
                     THERMOSTAT-TYPE = PROPORTIONAL
                     SIZING-OPTION = FROM-LOADS   ..

1STMDX      =ZONE    DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                     HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                     ZONE-TYPE = CONDITIONED
                     THERMOSTAT-TYPE = PROPORTIONAL
                     SIZING-OPTION = FROM-LOADS   ..

2STMDX      =ZONE    DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                     HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                     ZONE-TYPE = CONDITIONED
                     THERMOSTAT-TYPE = PROPORTIONAL
                     SIZING-OPTION = FROM-LOADS   ..

3STMDX      =ZONE    DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                     HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                     ZONE-TYPE = CONDITIONED
                     THERMOSTAT-TYPE = PROPORTIONAL
                     SIZING-OPTION = FROM-LOADS   ..

4STMDXCLNR =ZONE     DESIGN-HEAT-T = 68.0  DESIGN-COOL-T = 68.0
                     HEAT-TEMP-SCH = Y4CLNRMT68  COOL-TEMP-SCH = Y4CLNRMT68
                     ZONE-TYPE = CONDITIONED
                     THERMOSTAT-TYPE = PROPORTIONAL  ASSIGNED-CFM = 50000.
                     OUTSIDE-AIR-CFM = 10000.  SIZING-OPTION = FROM-LOADS
                     HEATING-CAPACITY = -1000000.0   ..

4STMOFFCLB =ZONE     DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                     HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                     ZONE-TYPE = CONDITIONED
```

```
                    THERMOSTAT-TYPE = PROPORTIONAL
                    SIZING-OPTION = FROM-LOADS   ..

0LSTMDX    =ZONE    DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                    HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                    ZONE-TYPE = CONDITIONED
                    THERMOSTAT-TYPE = PROPORTIONAL
                    BASEBOARD-CTRL = THERMOSTATIC
                    BASEBOARD-RATING = -240750.
                    SIZING-OPTION = FROM-LOADS   ..

                    $ SYSTEM DESCRIPTION

0SSTMUH    =SYSTEM    SYSTEM-TYPE = UHT
                      MAX-SUPPLY-T = 100.0  HEATING-SCHEDULE = Y4CLNRMT68
                      FAN-SCHEDULE = YSHTSEAS1  SUPPLY-DELTA-T = 0.18
                      SUPPLY-KW = 0.000059
                      NIGHT-CYCLE-CTRL = CYCLE-ON-ANY
                      ZONE-NAMES = (0STMUH)  ..

0SSTMDX    =SYSTEM    SYSTEM-TYPE = SZRH
                      MAX-SUPPLY-T = 120.0  MIN-SUPPLY-T = 55.0
                      HEATING-SCHEDULE = YSON247D
                      COOLING-SCHEDULE = YSON247D  HEAT-SET-T = 190.0
                      PREHEAT-T = 0.0  OA-CONTROL = FIXED
                      MIN-OUTSIDE-AIR = 0.2  MAX-OA-FRACTION = 0.2
                      FAN-SCHEDULE = YSON247D  SUPPLY-DELTA-T = 2.4
                      SUPPLY-KW = 0.00078  NIGHT-CYCLE-CTRL = STAY-OFF
                      NIGHT-VENT-DT = 0.0  MIN-CFM-RATIO = 1.0
                      PREHEAT-SOURCE = HOT-WATER
                      ZONE-NAMES = (0LSTMDX)  ..

1SSTMUH    =SYSTEM    SYSTEM-TYPE = UHT
                      MAX-SUPPLY-T = 120.0  HEATING-SCHEDULE = YSON247D
                      FAN-SCHEDULE = YSON247D  SUPPLY-DELTA-T = 0.18
                      SUPPLY-KW = 0.000059
                      NIGHT-CYCLE-CTRL = CYCLE-ON-ANY
                      ZONE-NAMES = (1STMUH)  ..

1SSTMDX    =SYSTEM    SYSTEM-TYPE = SZRH
                      MAX-SUPPLY-T = 120.0  MIN-SUPPLY-T = 55.0
                      HEATING-SCHEDULE = YSON247D
                      COOLING-SCHEDULE = YSON247D  HEAT-SET-T = 190.0
                      PREHEAT-T = 0.0  OA-CONTROL = FIXED
                      MIN-OUTSIDE-AIR = 0.15  MAX-OA-FRACTION = 0.15
                      FAN-SCHEDULE = YSON247D  SUPPLY-DELTA-T = 2.4
                      SUPPLY-KW = 0.00078  NIGHT-CYCLE-CTRL = STAY-OFF
                      NIGHT-VENT-DT = 0.0  MIN-CFM-RATIO = 1.0
                      PREHEAT-SOURCE = HOT-WATER
                      ZONE-NAMES = (1STMDX)  ..

2SSTMDX    =SYSTEM    SYSTEM-TYPE = SZRH
                      MAX-SUPPLY-T = 120.0  MIN-SUPPLY-T = 55.0
                      HEATING-SCHEDULE = YSON247D
                      COOLING-SCHEDULE = YSON247D  HEAT-SET-T = 190.0
                      PREHEAT-T = 0.0  OA-CONTROL = FIXED
                      MIN-OUTSIDE-AIR = 0.15  MAX-OA-FRACTION = 0.15
                      FAN-SCHEDULE = YSON247D  SUPPLY-DELTA-T = 2.4
                      SUPPLY-KW = 0.00078  NIGHT-CYCLE-CTRL = STAY-OFF
```

```
                              NIGHT-VENT-DT = 0.0  MIN-CFM-RATIO = 1.0
                              PREHEAT-SOURCE = HOT-WATER
                              ZONE-NAMES = (2STMDX)  ..

3SSTMDX      =SYSTEM          SYSTEM-TYPE = SZRH
                              MAX-SUPPLY-T = 120.0  MIN-SUPPLY-T = 55.0
                              HEATING-SCHEDULE = YSON247D
                              COOLING-SCHEDULE = YSON247D  HEAT-SET-T = 190.0
                              PREHEAT-T = 0.0  ECONO-LIMIT-T = 55.0
                              OA-CONTROL = FIXED  MIN-OUTSIDE-AIR = 0.15
                              MAX-OA-FRACTION = 0.15  FAN-SCHEDULE = YSON247D
                              SUPPLY-DELTA-T = 2.4  SUPPLY-KW = 0.00078
                              NIGHT-CYCLE-CTRL = STAY-OFF  NIGHT-VENT-DT = 0.0
                              MIN-CFM-RATIO = 1.0  PREHEAT-SOURCE = HOT-WATER
                              ZONE-NAMES = (3STMDX)  ..

4SSTMDXCLN =SYSTEM            SYSTEM-TYPE = RHFS
                              MAX-SUPPLY-T = 70.0  MIN-SUPPLY-T = 50.0
                              HEATING-SCHEDULE = YSON247D
                              COOLING-SCHEDULE = YSON247D  HEAT-SET-T = 50.0
                              PREHEAT-T = 0.0  MAX-HUMIDITY = 55.0
                              ECONO-LIMIT-T = 55.0  OA-CONTROL = FIXED
                              SUPPLY-CFM = 50000.  MIN-OUTSIDE-AIR = 0.2
                              MAX-OA-FRACTION = 0.2  FAN-SCHEDULE = YSON247D
                              SUPPLY-DELTA-T = 3.1  SUPPLY-KW = 0.00101
                              NIGHT-CYCLE-CTRL = STAY-OFF  NIGHT-VENT-DT = 0.0
                              REHEAT-DELTA-T = 16.  SIZING-OPTION = COINCIDENT
                              RETURN-AIR-PATH = DIRECT
                              ZONE-NAMES = (4STMDXCLNR)  ..

4SSTMDXOFC =SYSTEM            SYSTEM-TYPE = SZRH
                              MAX-SUPPLY-T = 120.0  MIN-SUPPLY-T = 55.0
                              HEATING-SCHEDULE = YSON247D
                              COOLING-SCHEDULE = YSON247D  HEAT-SET-T = 190.0
                              OA-CONTROL = FIXED  MIN-OUTSIDE-AIR = 0.15
                              MAX-OA-FRACTION = 0.15  FAN-SCHEDULE = YSON247D
                              SUPPLY-DELTA-T = 2.42  SUPPLY-KW = 0.000783
                              NIGHT-CYCLE-CTRL = STAY-OFF  NIGHT-VENT-DT = 0.0
                              MIN-CFM-RATIO = 1.0  PREHEAT-SOURCE = HOT-WATER
                              ZONE-NAMES = (4STMOFFCLB)  ..


                           $ HOURLY REPORT DESCRIPTION

S_1          =REPORT-BLOCK VARIABLE-TYPE = 0SSTMDX
                           VARIABLE-LIST = (33) ..
S_2          =REPORT-BLOCK VARIABLE-TYPE = 1SSTMDX
                           VARIABLE-LIST = (33) ..
S_3          =REPORT-BLOCK VARIABLE-TYPE = 2SSTMDX
                           VARIABLE-LIST = (33) ..
S_4          =REPORT-BLOCK VARIABLE-TYPE = 3SSTMDX
                           VARIABLE-LIST = (33) ..
S_5          =REPORT-BLOCK VARIABLE-TYPE = 4SSTMDXCLN
                           VARIABLE-LIST = (33) ..
SR_1         = HOURLY-REPORT  REPORT-SCHEDULE = OFFPK_YR
                           REPORT-BLOCK = (S_1,S_2,S_3,S_4,S_5)
..
END  ..
COMPUTE SYSTEMS  ..
```

```
INPUT PLANT  ..


                    $---------------------------------------$
                    $ E Z - D O E   P L A N T S   I N P U T $
                    $---------------------------------------$

                       $ GENERAL PROJECT DATA

TITLE  LINE-1 *         ENTECH  ENGINEERING         *
       LINE-2 *EZDOE - ELITE SOFTWARE DEVELOPMENT INC*
       LINE-3 *    READING,       PA        19603     *

       LINE-4 *4130.05 FT. MONMOUTH - MYER CENTER, NJ  *
       LINE-5 *FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24* ..

ABORT                  ERRORS  ..
DIAGNOSTIC             WARNINGS ..
PLANT-REPORT           VERIFICATION=(PV-A)
                       SUMMARY=(PS-D,PS-H,BEPS)
                       REPORT-FREQUENCY = MONTHLY  ..

                        $ SCHEDULES

D24FULON    =DAY-SCHEDULE  (1,24) (1.) ..

D24FULOF    =DAY-SCHEDULE  (1,24) (0.) ..

OFFPK_PD    =DAY-SCHEDULE  (1,7) (1.)
                           (8,19) (0.)
                           (20,24) (1.) ..

ONPK_PD     =DAY-SCHEDULE  (1,7) (0.)
                           (8,19) (1.)
                           (20,24) (0.) ..

OFFPK_PEND =DAY-SCHEDULE   (1,24) (1.) ..


W24FULON7D =WEEK-SCHEDULE  (ALL) D24FULON   ..

W24FULOF7D =WEEK-SCHEDULE  (ALL) D24FULOF   ..

OFFPK_PW   =WEEK-SCHEDULE  (WD)  OFFPK_PD
                           (WEH) OFFPK_PEND  ..

ONPK_PW    =WEEK-SCHEDULE  (WD)  ONPK_PD
                           (WEH) D24FULOF   ..


$ YRSCH FUL ON 24HR/7D
Y24FULON7D =SCHEDULE THRU DEC 31 W24FULON7D  ..

$ YRSCH HEATING SEAS1
YHTSEAS1   =SCHEDULE THRU MAY 15 W24FULON7D
                     THRU OCT 15 W24FULOF7D
                     THRU DEC 31 W24FULON7D  ..

$ YRSCH COOL SEAS1
YCLSEAS1   =SCHEDULE THRU MAY 15 W24FULOF7D
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                         THRU OCT 15 W24FULON7D
                         THRU DEC 31 W24FULOF7D  ..

OFFPK_PYR   =SCHEDULE THRU DEC 31 OFFPK_PW  ..

ONPK_PYR    =SCHEDULE THRU DEC 31 ONPK_PW  ..


                    $ EQUIPMENT DESCRIPTION

PLSTMBLR    =PLANT-EQUIPMENT   TYPE = STM-BOILER
                         SIZE = -999.  ..

PLHRCCH1    =PLANT-EQUIPMENT   TYPE = HERM-REC-CHLR
                         SIZE = -999.  ..

PLDHW       =PLANT-EQUIPMENT   TYPE = DHW-HEATER
                         SIZE = -999.  ..

PLANT-PARAMETERS         BOILER-CONTROL = STANDBY  HW-BOILER-HIR = 1.2
                         TWR-WTR-SET-POINT = 85.  TWR-CELL-MAX-GPM = 1.0
                         TWR-FAN-OFF-CFM = 0.1  CHILLER-CONTROL = STANDBY
                         HERM-REC-COND-TYPE = AIR  HERM-REC-COND-PWR = 0.15
                         CHILL-WTR-T = 55.  CCIRC-HEAD = 100.0
                         CCIRC-DESIGN-T-DROP = 5.0 .HCIRC-HEAD = 90.0
                         HCIRC-DESIGN-T-DROP = 25.0    ..


PART-LOAD-RATIO  TYPE = HERM-REC-CHLR
                 MIN-RATIO            =  0.2500  MAX-RATIO         =  1.0000
                 OPERATING-RATIO  =  1.0000  ELEC-INPUT-RATIO =  0.1600  ..

ENERGY-RESOURCE          RESOURCE = FUEL-OIL  ..
ENERGY-RESOURCE          RESOURCE = ELECTRICITY  ..
ENERGY-RESOURCE          RESOURCE = NATURAL-GAS  ..


                    $ HOURLY REPORT DESCRIPTION

P_1         =REPORT-BLOCK VARIABLE-TYPE = HERM-REC-CHLR
                          VARIABLE-LIST = (1,3,18) ..
P_2         =REPORT-BLOCK VARIABLE-TYPE = STM-BOILER
                          VARIABLE-LIST = (1,3) ..
PR_1        = HOURLY-REPORT  REPORT-SCHEDULE = OFFPK_PYR
                          REPORT-BLOCK = (P_1,P_2)
 ..
END  ..
COMPUTE PLANT ..
STOP ..
```

REPORT- LS-F BUILDING MONTHLY LOAD COMPONENTS IN MBTU WEATHER FILE- NEWARK, NJ

| (UNITS=MBTU) | | WALLS | ROOFS | INT SUR | UND SUR | INFIL | GL CON | GL SOL | OCCUP | LIGHTS | EQUIP | SOURCE | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | HEATNG | -83.862 | -188.593 | 0.000 | -212.447 | -217.365 | -82.468 | 36.261 | 14.151 | 85.750 | 36.517 | 0.000 | -612.056 |
| JAN | SEN CL | -6.310 | -38.603 | 0.000 | 0.000 | -0.119 | -1.870 | 0.652 | 9.539 | 168.409 | 351.052 | 0.000 | 482.750 |
| | LAT CL | | | | | 0.000 | | | 7.780 | | 0.000 | 0.000 | 7.780 |
| | HEATNG | -68.621 | -156.563 | 0.000 | -216.734 | -189.372 | -70.823 | 42.070 | 12.426 | 74.585 | 32.072 | 0.000 | -540.961 |
| FEB | SEN CL | -7.608 | -32.893 | 0.000 | 0.000 | -0.091 | -2.275 | 0.972 | 9.050 | 155.865 | 318.863 | 0.000 | 441.884 |
| | LAT CL | | | | | 0.000 | | | 7.404 | | 0.000 | 0.000 | 7.404 |
| | HEATNG | -57.582 | -132.071 | 0.000 | -239.948 | -174.478 | -63.959 | 52.415 | 13.678 | 80.537 | 33.590 | 0.000 | -487.820 |
| MAR | SEN CL | -9.702 | -31.370 | 0.000 | -2.315 | -1.199 | -3.488 | 3.867 | 11.828 | 191.225 | 370.952 | 0.000 | 529.798 |
| | LAT CL | | | | | 0.168 | | | 9.718 | | 0.000 | 0.000 | 9.886 |
| | HEATNG | -30.976 | -72.496 | 0.000 | -198.498 | -80.367 | -37.630 | 43.543 | 9.593 | 57.298 | 25.313 | 0.000 | -284.222 |
| APR | SEN CL | -6.847 | -12.841 | 0.000 | -23.319 | -0.521 | -5.124 | 16.926 | 14.038 | 195.742 | 356.615 | 0.000 | 534.669 |
| | LAT CL | | | | | 2.284 | | | 11.522 | | 0.000 | 0.000 | 13.807 |
| | HEATNG | -16.076 | -40.819 | 0.000 | -126.276 | -40.044 | -21.455 | 32.337 | 6.201 | 38.238 | 18.118 | 0.000 | -149.777 |
| MAY | SEN CL | -1.600 | 9.167 | 0.000 | -50.460 | 12.393 | -4.759 | 37.771 | 17.499 | 216.032 | 369.560 | 0.000 | 605.604 |
| | LAT CL | | | | | 12.124 | | | 14.406 | | 0.000 | 0.000 | 26.530 |
| | HEATNG | -3.416 | -11.764 | 0.000 | -54.526 | -3.040 | -6.449 | 13.978 | 1.972 | 14.254 | 8.914 | 0.000 | -40.078 |
| JUN | SEN CL | 7.597 | 38.721 | 0.000 | -65.841 | 28.412 | -1.113 | 50.550 | 22.484 | 246.556 | 380.475 | 0.000 | 707.840 |
| | LAT CL | | | | | 40.982 | | | 18.373 | | 0.000 | 0.000 | 59.355 |
| | HEATNG | -1.117 | -5.875 | 0.000 | -22.761 | -0.707 | -3.078 | 7.168 | 0.844 | 6.770 | 5.469 | 0.000 | -13.288 |
| JUL | SEN CL | 12.771 | 51.167 | 0.000 | -56.196 | 39.412 | 1.431 | 59.045 | 22.069 | 240.206 | 375.222 | 0.000 | 745.127 |
| | LAT CL | | | | | 59.063 | | | 17.749 | | 0.000 | 0.000 | 76.812 |
| | HEATNG | -2.995 | -10.395 | 0.000 | -14.262 | -1.734 | -4.828 | 6.946 | 0.778 | 6.588 | 5.698 | 0.000 | -14.203 |
| AUG | SEN CL | 9.012 | 38.144 | 0.000 | -35.886 | 29.028 | -0.898 | 56.088 | 24.680 | 264.587 | 398.260 | 0.000 | 783.014 |
| | LAT CL | | | | | 59.740 | | | 19.868 | | 0.000 | 0.000 | 79.608 |
| | HEATNG | -7.149 | -20.852 | 0.000 | -18.937 | -9.052 | -9.301 | 11.945 | 1.933 | 13.893 | 8.943 | 0.000 | -28.577 |
| SEP | SEN CL | -1.788 | 6.271 | 0.000 | -27.144 | 7.229 | -7.512 | 45.710 | 21.644 | 238.465 | 372.306 | 0.000 | 655.179 |
| | LAT CL | | | | | 38.489 | | | 17.550 | | 0.000 | 0.000 | 56.038 |
| | HEATNG | -24.907 | -60.731 | 0.000 | -50.097 | -45.698 | -27.409 | 26.462 | 5.612 | 37.082 | 19.063 | 0.000 | -120.623 |
| OCT | SEN CL | -7.365 | -18.425 | 0.000 | -20.823 | -5.813 | -9.031 | 25.884 | 17.247 | 209.216 | 360.954 | 0.000 | 551.844 |
| | LAT CL | | | | | 5.217 | | | 14.410 | | 0.000 | 0.000 | 19.627 |
| | HEATNG | -47.953 | -113.060 | 0.000 | -103.641 | -108.396 | -50.682 | 30.095 | 10.047 | 62.190 | 28.939 | 0.000 | -292.463 |
| NOV | SEN CL | -8.103 | -29.199 | 0.000 | -7.730 | -1.387 | -3.895 | 5.051 | 12.646 | 181.670 | 344.124 | 0.000 | 493.178 |
| | LAT CL | | | | | 5.465 | | | 10.549 | | 0.000 | 0.000 | 16.014 |
| | HEATNG | -73.392 | -167.684 | 0.000 | -164.480 | -204.012 | -74.067 | 31.808 | 13.554 | 81.773 | 34.898 | 0.000 | -521.602 |
| DEC | SEN CL | -7.690 | -37.184 | 0.000 | -1.341 | -0.627 | -2.440 | 1.479 | 10.246 | 173.744 | 354.021 | 0.000 | 490.210 |
| | LAT CL | | | | | 0.000 | | | 8.378 | | 0.000 | 0.000 | 8.378 |
| | HEATNG | -418.048 | -980.901 | 0.000 | -1422.580 | -1074.266 | -452.151 | 335.029 | 90.788 | 558.953 | 257.531 | 0.000 | -3105.646 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOT | SEN CL | -27.633 | -57.046 | 0.000 | -291.060 | 106.717 | -40.973 | 303.995 | 192.964 | 2481.692 | 4352.166 | 0.000 | 7020.822 |
| | LAT CL | | | | | 223.532 | | | 157.675 | | 0.000 | 0.000 | 381.207 |

REPORT- SV-A SYSTEM DESIGN PARAMETERS 0SSTMUH WEATHER FILE- NEWARK, NJ

| SYSTEM NAME | ALTITUDE MULTIPLIER |
|---|---|
| 0SSTMUH | 1.000 |

| SUPPLY FAN (CFM ) | ELEC (KW) | DELTA-T (F) | RETURN FAN (CFM ) | ELEC (KW) | DELTA-T (F) | OUTSIDE AIR RATIO | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | HEATING CAPACITY (KBTU/HR) | COOLING EIR (BTU/BTU) | HEATING EIR (BTU/BTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 13960. | 0.000 | 0.2 | 0. | 0.000 | 0.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 |

| ZONE NAME | SUPPLY FLOW | EXHAUST FLOW | FAN (KW) | MINIMUM FLOW RATIO | OUTSIDE AIR FLOW | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | EXTRACTION RATE (KBTU/HR) | HEATING CAPACITY (KBTU/HR) | ADDITION RATE (KBTU/HR) | MULTIPLIER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0STMUH | 13960. | 0. | 0.824 | 1.000 | 0. | 0.00 | 0.00 | 0.00 | -480.58 | -482.35 | 1.0 |

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| SYSTEM NAME | ALTITUDE MULTIPLIER |
|---|---|
| 0SSTMDX | 1.000 |

| SUPPLY FAN (CFM ) | ELEC (KW) | DELTA-T (F) | RETURN FAN (CFM ) | ELEC (KW) | DELTA-T (F) | OUTSIDE AIR RATIO | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | HEATING CAPACITY (KBTU/HR) | COOLING EIR (BTU/BTU) | HEATING EIR (BTU/BTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 23580. | 18.392 | 2.4 | 0. | 0.000 | 0.0 | 0.200 | 918.407 | 0.682 | -3287.053 | 0.00 | 0.00 |

| ZONE NAME | SUPPLY FLOW | EXHAUST FLOW | FAN (KW) | MINIMUM FLOW RATIO | OUTSIDE AIR FLOW | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | EXTRACTION RATE (KBTU/HR) | HEATING CAPACITY (KBTU/HR) | ADDITION RATE (KBTU/HR) | MULTIPLIER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0LSTMDX | 23580. | 0. | 0.000 | 1.000 | 4716. | 0.00 | 0.00 | 509.33 | 0.00 | -1463.14 | 1.0 |

REPORT- SV-A SYSTEM DESIGN PARAMETERS 1SSTMUH WEATHER FILE- NEWARK, NJ

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| SYSTEM NAME | ALTITUDE MULTIPLIER |
|---|---|
| 1SSTMUH | 1.000 |

| SUPPLY FAN (CFM ) | ELEC (KW) | DELTA-T (F) | RETURN FAN (CFM ) | ELEC (KW) | DELTA-T (F) | OUTSIDE AIR RATIO | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | HEATING CAPACITY (KBTU/HR) | COOLING EIR (BTU/BTU) | HEATING EIR (BTU/BTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 13610. | 0.000 | 0.2 | 0. | 0.000 | 0.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 |

| ZONE NAME | SUPPLY FLOW | EXHAUST FLOW | FAN (KW) | MINIMUM FLOW RATIO | OUTSIDE AIR FLOW | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | EXTRACTION RATE (KBTU/HR) | HEATING CAPACITY (KBTU/HR) | ADDITION RATE (KBTU/HR) | MULTIPLIER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1STMUH | 13610. | 0. | 0.803 | 1.000 | 0. | 0.00 | 0.00 | 0.00 | -698.82 | -705.41 | 1.0 |

REPORT- SV-A SYSTEM DESIGN PARAMETERS 1SSTMDX WEATHER FILE- NEWARK, NJ

| SYSTEM NAME | ALTITUDE MULTIPLIER |
|---|---|
| 1SSTMDX | 1.000 |

| SUPPLY FAN (CFM ) | ELEC (KW) | DELTA-T (F) | RETURN FAN (CFM ) | ELEC (KW) | DELTA-T (F) | OUTSIDE AIR RATIO | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | HEATING CAPACITY (KBTU/HR) | COOLING EIR (BTU/BTU) | HEATING EIR (BTU/BTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10240. | 7.987 | 2.4 | 0. | 0.000 | 0.0 | 0.150 | 390.751 | 0.689 | -1387.821 | 0.00 | 0.00 |

| ZONE NAME | SUPPLY FLOW | EXHAUST FLOW | FAN (KW) | MINIMUM FLOW RATIO | OUTSIDE AIR FLOW | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | EXTRACTION RATE (KBTU/HR) | HEATING CAPACITY (KBTU/HR) | ADDITION RATE (KBTU/HR) | MULTIPLIER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1STMDX | 10240. | 0. | 0.000 | 1.000 | 1536. | 0.00 | 0.00 | 221.18 | 0.00 | -530.84 | 1.0 |

REPORT- SV-A SYSTEM DESIGN PARAMETERS 2SSTMDX WEATHER FILE- NEWARK, NJ

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| SYSTEM NAME | ALTITUDE MULTIPLIER |
|---|---|
| 2SSTMDX | 1.000 |

| SUPPLY FAN (CFM ) | ELEC (KW) | DELTA-T (F) | RETURN FAN (CFM ) | ELEC (KW) | DELTA-T (F) | OUTSIDE AIR RATIO | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | HEATING CAPACITY (KBTU/HR) | COOLING EIR (BTU/BTU) | HEATING EIR (BTU/BTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 29420. | 22.948 | 2.4 | 0. | 0.000 | 0.0 | 0.150 | 1116.736 | 0.691 | -3987.275 | 0.00 | 0.00 |

| ZONE NAME | SUPPLY FLOW | EXHAUST FLOW | FAN (KW) | MINIMUM FLOW RATIO | OUTSIDE AIR FLOW | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | EXTRACTION RATE (KBTU/HR) | HEATING CAPACITY (KBTU/HR) | ADDITION RATE (KBTU/HR) | MULTIPLIER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2STMDX | 29420. | 0. | 0.000 | 1.000 | 4413. | 0.00 | 0.00 | 635.47 | 0.00 | -1525.13 | 1.0 |

REPORT- SV-A SYSTEM DESIGN PARAMETERS 3SSTMDX WEATHER FILE- NEWARK, NJ

| SYSTEM NAME | ALTITUDE MULTIPLIER |
|---|---|
| 3SSTMDX | 1.000 |

| SUPPLY FAN (CFM ) | ELEC (KW) | DELTA-T (F) | RETURN FAN (CFM ) | ELEC (KW) | DELTA-T (F) | OUTSIDE AIR RATIO | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | HEATING CAPACITY (KBTU/HR) | COOLING EIR (BTU/BTU) | HEATING EIR (BTU/BTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 17170. | 13.393 | 2.4 | 0. | 0.000 | 0.0 | 0.150 | 652.451 | 0.690 | -2327.040 | 0.00 | 0.00 |

| ZONE NAME | SUPPLY FLOW | EXHAUST FLOW | FAN (KW) | MINIMUM FLOW RATIO | OUTSIDE AIR FLOW | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | EXTRACTION RATE (KBTU/HR) | HEATING CAPACITY (KBTU/HR) | ADDITION RATE (KBTU/HR) | MULTIPLIER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3STMDX | 17170. | 0. | 0.000 | 1.000 | 2576. | 0.00 | 0.00 | 370.87 | 0.00 | -890.09 | 1.0 |

REPORT- SV-A SYSTEM DESIGN PARAMETERS 4SSTMDXCLN WEATHER FILE- NEWARK, NJ

| SYSTEM NAME | ALTITUDE MULTIPLIER |
|---|---|
| 4SSTMDXCLN | 1.000 |

| SUPPLY FAN (CFM ) | ELEC (KW) | DELTA-T (F) | RETURN FAN (CFM ) | ELEC (KW) | DELTA-T (F) | OUTSIDE AIR RATIO | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | HEATING CAPACITY (KBTU/HR) | COOLING EIR (BTU/BTU) | HEATING EIR (BTU/BTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 50000. | 50.500 | 3.1 | 0. | 0.000 | 0.0 | 0.200 | 2625.423 | 0.592 | 0.000 | 0.00 | 0.00 |

| ZONE NAME | SUPPLY FLOW | EXHAUST FLOW | FAN (KW) | MINIMUM FLOW RATIO | OUTSIDE AIR FLOW | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | EXTRACTION RATE (KBTU/HR) | HEATING CAPACITY (KBTU/HR) | ADDITION RATE (KBTU/HR) | MULTIPLIER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4STMDXCLNR | 50000. | 0. | 0.000 | 1.000 | 10000. | 0.00 | 0.00 | 972.00 | -864.00 | -108.00 | 1.0 |

REPORT- SV-A SYSTEM DESIGN PARAMETERS 4SSTMDXOFC WEATHER FILE- NEWARK, NJ

| SYSTEM NAME | ALTITUDE MULTIPLIER |
|---|---|
| 4SSTMDXOFC | 1.000 |

| SUPPLY FAN (CFM ) | ELEC (KW) | DELTA-T (F) | RETURN FAN (CFM ) | ELEC (KW) | DELTA-T (F) | OUTSIDE AIR RATIO | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | HEATING CAPACITY (KBTU/HR) | COOLING EIR (BTU/BTU) | HEATING EIR (BTU/BTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6640. | 5.199 | 2.4 | 0. | 0.000 | 0.0 | 0.150 | 252.823 | 0.690 | -899.770 | 0.00 | 0.00 |

| ZONE NAME | SUPPLY FLOW | EXHAUST FLOW | FAN (KW) | MINIMUM FLOW RATIO | OUTSIDE AIR FLOW | COOLING CAPACITY (KBTU/HR) | SENSIBLE (SHR) | EXTRACTION RATE (KBTU/HR) | HEATING CAPACITY (KBTU/HR) | ADDITION RATE (KBTU/HR) | MULTIPLIER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4STMOFFCLB | 6640. | 0. | 0.000 | 1.000 | 996. | 0.00 | 0.00 | 143.42 | 0.00 | -344.22 | 1.0 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11:14:27 SDL RUN 1

READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24

REPORT- SS-D PLANT MONTHLY LOADS SUMMARY FOR DEFAULT-PLANT WEATHER FILE- NEWARK, NJ

| | - - - - - - - - C O O L I N G - - - - - - - - | | | | | | - - - - - - - - H E A T I N G - - - - - - - - | | | | | | - - - E L E C - - - | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 734.49866 | 25 | 14 | 52.F | 41.F | 1902.798 | -1347.132 | 5 | 21 | 15.F | 12.F | -2945.473 | 276815. | 707.161 |
| FEB | 689.95953 | 11 | 14 | 52.F | 50.F | 1947.922 | -1197.829 | 20 | 3 | 10.F | 7.F | -3142.490 | 250183. | 706.495 |
| MAR | 880.38153 | 15 | 16 | 70.F | 61.F | 2406.023 | -1145.207 | 5 | 1 | 29.F | 24.F | -2291.763 | 286502. | 706.461 |
| APR | 1036.69739 | 29 | 16 | 78.F | 67.F | 2896.074 | -841.243 | 9 | 6 | 30.F | 25.F | -2143.264 | 270995. | 706.316 |
| MAY | 1283.01001 | 26 | 16 | 86.F | 72.F | 3639.623 | -669.412 | 21 | 7 | 46.F | 44.F | -1616.674 | 276518. | 706.014 |
| JUN | 1616.68347 | 13 | 13 | 95.F | 75.F | 4159.959 | -503.655 | 4 | 6 | 55.F | 50.F | -1014.016 | 275700. | 705.631 |
| JUL | 1785.26257 | 29 | 13 | 88.F | 73.F | 3977.014 | -504.090 | 15 | 6 | 62.F | 59.F | -850.181 | 271573. | 705.631 |
| A[illegible] | 1824.01367 | 18 | 16 | 91.F | 77.F | 4362.844 | -504.945 | 22 | 5 | 58.F | 57.F | -971.342 | 286190. | 705.631 |
| SEP | 1478.22900 | 20 | 12 | 80.F | 75.F | 3879.487 | -517.335 | 26 | 6 | 50.F | 46.F | -1149.482 | 270833. | 705.720 |
| OCT | 1161.73364 | 17 | 15 | 75.F | 65.F | 3083.900 | -671.035 | 25 | 6 | 41.F | 36.F | -1659.976 | 271631. | 705.904 |
| NOV | 932.02478 | 2 | 15 | 77.F | 70.F | 3342.014 | -899.365 | 23 | 6 | 31.F | 26.F | -1985.155 | 266124. | 706.300 |
| DEC | 791.00671 | 2 | 14 | 64.F | 53.F | 2238.509 | -1227.427 | 8 | 4 | 19.F | 17.F | -2322.254 | 276776. | 706.508 |
| TOTAL | 14213.462 | | | | | | -10028.692 | | | | | | 3279762. | |
| MAX | | | | | | 4362.844 | | | | | | -3142.490 | | 707.161 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11:14:27 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24
REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 0SSTMUH WEATHER FILE- NEWARK, NJ

| | - - - COOLING - - - | | | | | | - - - HEATING - - - | | | | | | - - - ELEC - - - | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 0.00000 | | | | | 0.000 | -112.613 | 5 | 20 | 15.F | 12.F | -446.126 | 5924. | 23.948 |
| FEB | 0.00000 | | | | | 0.000 | -105.000 | 20 | 3 | 10.F | 7.F | -395.889 | 5362. | 23.643 |
| MAR | 0.00000 | | | | | 0.000 | -101.294 | 5 | 1 | 29.F | 24.F | -265.201 | 6284. | 23.619 |
| APR | 0.00000 | | | | | 0.000 | -60.669 | 9 | 4 | 32.F | 27.F | -236.640 | 5776. | 23.547 |
| MAY | 0.00000 | | | | | 0.000 | -26.019 | 21 | 7 | 46.F | 44.F | -190.399 | 5773. | 23.471 |
| JUN | 0.00000 | | | | | 0.000 | -0.083 | 1 | 5 | 63.F | 55.F | -82.929 | 5861. | 23.220 |
| JUL | 0.00000 | | | | | 0.000 | 0.000 | | | | | 0.000 | 5536. | 23.220 |
| A[illegible] | 0.00000 | | | | | 0.000 | 0.000 | | | | | 0.000 | 6107. | 23.220 |
| SEP | 0.00000 | | | | | 0.000 | 0.000 | | | | | 0.000 | 5670. | 23.220 |
| OCT | 0.00000 | | | | | 0.000 | -11.518 | 25 | 6 | 41.F | 36.F | -140.334 | 5556. | 23.311 |
| NOV | 0.00000 | | | | | 0.000 | -46.401 | 25 | 6 | 38.F | 37.F | -206.371 | 5561. | 23.511 |
| DEC | 0.00000 | | | | | 0.000 | -95.696 | 6 | 19 | 30.F | 26.F | -255.627 | 5894. | 23.618 |
| TOTAL | 0.000 | | | | | | -559.292 | | | | | | 69300. | |
| MAX | | | | | | 0.000 | | | | | | -446.126 | | 23.948 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11:14:27 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOBBO-STM(UH&AHU W/DX)4CLN REHT&HTON24
REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 0SSTMUH WEATHER FILE- NEWARK, NJ

--------------------------------------------------------------------------------

| | --ZONE COOLING-- | | --ZONE HEATING- | | --BASEBOARDS-- | | ----PRE-HEAT--- | |
|---|---|---|---|---|---|---|---|---|
| MONTH | ZONE COIL COOLING ENERGY (MBTU) | MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR) | ZONE COIL HEATING ENERGY (MBTU) | MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR) | BASEBOARD HEATING ENERGY (MBTU) | MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR) | PRE-HEAT COIL ENERGY (MBTU) | MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR) |
| JAN | 0.00000 | 0.000 | -112.61273 | -446.126 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| FEB | 0.00000 | 0.000 | -104.99960 | -395.889 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAR | 0.00000 | 0.000 | -101.29436 | -265.201 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| APR | 0.00000 | 0.000 | -60.66871 | -236.640 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAY | 0.00000 | 0.000 | -26.01891 | -190.399 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| JUN | 0.00000 | 0.000 | -0.08293 | -82.929 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| [illegible] | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| AUG | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| SEP | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| OCT | 0.00000 | 0.000 | -11.51841 | -140.334 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| NOV | 0.00000 | 0.000 | -46.40113 | -206.371 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| DEC | 0.00000 | 0.000 | -95.69556 | -255.627 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| | ---------- | ---------- | ---------- | ---------- | ---------- | ---------- | ---------- | ---------- |
| TOTAL | 0.000 | | -559.292 | | 0.000 | | 0.000 | |
| MAX | | 0.000 | | -446.126 | | 0.000 | | 0.000 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11:14:27 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24
REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 0SSTMDX WEATHER FILE- NEWARK, NJ

| | - - - - - - - - C O O L I N G - - - - - - - - | | | | | | - - - - - - - - H E A T I N G - - - - - - - - | | | | | | - - - E L E C - - - | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 0.00000 | | | | | 0.000 | -424.663 | 19 | 5 | 14.F | 12.F | -880.177 | 31571. | 78.496 |
| FEB | 0.00000 | | | | | 0.000 | -373.413 | 20 | 7 | 8.F | 6.F | -957.488 | 28532. | 78.496 |
| MAR | 0.10919 | 16 | 15 | 67.F | 50.F | 45.509 | -330.252 | 25 | 6 | 28.F | 25.F | -715.535 | 32565. | 78.496 |
| APR | 4.85594 | 15 | 15 | 73.F | 55.F | 234.400 | -195.398 | 9 | 7 | 30.F | 25.F | -660.360 | 30889. | 78.496 |
| MAY | 30.11234 | 10 | 15 | 87.F | 69.F | 451.981 | -94.774 | 3 | 6 | 39.F | 33.F | -471.012 | 31571. | 78.496 |
| JUN | 92.83858 | 13 | 13 | 95.F | 75.F | 656.288 | -17.941 | 4 | 6 | 55.F | 50.F | -245.499 | 31386. | 78.496 |
| JUL | 142.83754 | 12 | 13 | 87.F | 71.F | 624.137 | -2.114 | 15 | 6 | 62.F | 59.F | -98.983 | 31074. | 78.496 |
| [illegible] | 153.36879 | 18 | 16 | 91.F | 77.F | 730.743 | -5.612 | 22 | 5 | 58.F | 57.F | -180.556 | 32565. | 78.496 |
| SEP | 78.25856 | 6 | 14 | 79.F | 69.F | 516.576 | -13.869 | 27 | 6 | 48.F | 46.F | -259.040 | 30889. | 78.496 |
| OCT | 16.51519 | 17 | 15 | 75.F | 65.F | 353.148 | -80.379 | 11 | 6 | 40.F | 35.F | -408.051 | 31074. | 78.496 |
| NOV | 2.23800 | 2 | 15 | 77.F | 70.F | 262.428 | -208.601 | 9 | 6 | 29.F | 25.F | -584.202 | 30392. | 78.496 |
| DEC | 0.07223 | 2 | 14 | 64.F | 53.F | 36.576 | -353.525 | 8 | 6 | 19.F | 17.F | -756.611 | 31571. | 78.496 |
| | --------- | | | | | ---------- | --------- | | | | | ---------- | -------- | ------- |
| TOTAL | 521.207 | | | | | | -2100.542 | | | | | | 374066. | |
| MAX | | | | | | 730.743 | | | | | | -957.488 | | 78.496 |

REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 0SSTMDX WEATHER FILE- NEWARK, NJ

| | --ZONE COOLING-- | | --ZONE HEATING- | | --BASEBOARDS-- | | ----PRE-HEAT--- | |
|---|---|---|---|---|---|---|---|---|
| MONTH | ZONE COIL COOLING ENERGY (MBTU) | MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR) | ZONE COIL HEATING ENERGY (MBTU) | MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR) | BASEBOARD HEATING ENERGY (MBTU) | MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR) | PRE-HEAT COIL ENERGY (MBTU) | MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR) |
| JAN | 0.00000 | 0.000 | 0.00000 | 0.000 | -178.04318 | -240.750 | 0.00000 | 0.000 |
| FEB | 0.00000 | 0.000 | 0.00000 | 0.000 | -159.78296 | -240.750 | 0.00000 | 0.000 |
| MAR | 0.00000 | 0.000 | 0.00000 | 0.000 | -165.73660 | -240.750 | 0.00000 | 0.000 |
| APR | 0.00000 | 0.000 | 0.00000 | 0.000 | -123.67260 | -240.750 | 0.00000 | 0.000 |
| MAY | 0.00000 | 0.000 | 0.00000 | 0.000 | -70.97748 | -240.750 | 0.00000 | 0.000 |
| JUN | 0.00000 | 0.000 | 0.00000 | 0.000 | -14.39665 | -196.853 | 0.00000 | 0.000 |
| JUL | 0.00000 | 0.000 | 0.00000 | 0.000 | -1.69665 | -79.436 | 0.00000 | 0.000 |
| AUG | 0.00000 | 0.000 | 0.00000 | 0.000 | -4.50082 | -144.519 | 0.00000 | 0.000 |
| SEP | 0.00000 | 0.000 | 0.00000 | 0.000 | -11.11564 | -207.168 | 0.00000 | 0.000 |
| OCT | 0.00000 | 0.000 | 0.00000 | 0.000 | -63.09883 | -240.750 | 0.00000 | 0.000 |
| NOV | 0.00000 | 0.000 | 0.00000 | 0.000 | -134.81749 | -240.750 | 0.00000 | 0.000 |
| DEC | 0.00000 | 0.000 | 0.00000 | 0.000 | -172.49670 | -240.750 | 0.00000 | 0.000 |
| TOTAL | 0.000 | | 0.000 | | -1100.344 | | 0.000 | |
| MAX | | 0.000 | | 0.000 | | -240.750 | | 0.000 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11:14:27 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24
REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 1SSTMUH WEATHER FILE- NEWARK, NJ

| | - - - - - - - - C O O L I N G - - - - - - - - | | | | | | - - - - - - - - H E A T I N G - - - - - - - - | | | | | | - - - E L E C - - - | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 0.00000 | | | | | 0.000 | -146.391 | 5 | 20 | 15.F | 12.F | -703.103 | 4569. | 18.638 |
| FEB | 0.00000 | | | | | 0.000 | -126.787 | 20 | 3 | 10.F | 7.F | -600.042 | 4125. | 18.276 |
| MAR | 0.00000 | | | | | 0.000 | -115.264 | 4 | 16 | 29.F | 27.F | -406.593 | 4825. | 18.267 |
| APR | 0.00000 | | | | | 0.000 | -51.534 | 9 | 4 | 32.F | 27.F | -340.749 | 4415. | 18.193 |
| MAY | 0.00000 | | | | | 0.000 | -22.072 | 2 | 22 | 50.F | 39.F | -230.073 | 4424. | 17.991 |
| JUN | 0.00000 | | | | | 0.000 | 0.000 | | | | | 0.000 | 4501. | 17.835 |
| JUL | 0.00000 | | | | | 0.000 | 0.000 | | | | | 0.000 | 4252. | 17.835 |
| AUG | 0.00000 | | | | | 0.000 | 0.000 | | | | | 0.000 | 4690. | 17.835 |
| SEP | 0.00000 | | | | | 0.000 | -3.802 | 25 | 23 | 57.F | 49.F | -90.354 | 4360. | 17.924 |
| OCT | 0.00000 | | | | | 0.000 | -31.424 | 25 | 6 | 41.F | 36.F | -270.992 | 4288. | 18.017 |
| NOV | 0.00000 | | | | | 0.000 | -73.560 | 25 | 6 | 38.F | 37.F | -348.284 | 4295. | 18.213 |
| DEC | 0.00000 | | | | | 0.000 | -138.700 | 6 | 18 | 31.F | 26.F | -416.965 | 4560. | 18.314 |
| TOTAL | 0.000 | | | | | | -709.534 | | | | | | 53305. | |
| MAX | | | | | | 0.000 | | | | | | -703.103 | | 18.638 |

REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 1SSTMUH WEATHER FILE- NEWARK, NJ

| | --ZONE COOLING-- | | --ZONE HEATING- | | --BASEBOARDS-- | | ----PRE-HEAT--- | |
|---|---|---|---|---|---|---|---|---|
| MONTH | ZONE COIL COOLING ENERGY (MBTU) | MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR) | ZONE COIL HEATING ENERGY (MBTU) | MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR) | BASEBOARD HEATING ENERGY (MBTU) | MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR) | PRE-HEAT COIL ENERGY (MBTU) | MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR) |
| JAN | 0.00000 | 0.000 | -146.39053 | -703.103 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| FEB | 0.00000 | 0.000 | -126.78695 | -600.042 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAR | 0.00000 | 0.000 | -115.26421 | -406.593 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| APR | 0.00000 | 0.000 | -51.53436 | -340.749 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAY | 0.00000 | 0.000 | -22.07189 | -230.073 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| JUN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| [illegible] | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| AUG | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| SEP | 0.00000 | 0.000 | -3.80157 | -90.354 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| OCT | 0.00000 | 0.000 | -31.42404 | -270.992 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| NOV | 0.00000 | 0.000 | -73.56000 | -348.284 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| DEC | 0.00000 | 0.000 | -138.69984 | -416.965 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| TOTAL | 0.000 | | -709.534 | | 0.000 | | 0.000 | |
| MAX | | 0.000 | | -703.103 | | 0.000 | | 0.000 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11:14:27 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24
REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 1SSTMDX WEATHER FILE- NEWARK, NJ

| | - - - - - - - - - C O O L I N G - - - - - - - - - | | | | | | - - - - - - - - - H E A T I N G - - - - - - - - - | | | | | | - - - E L E C - - - | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 0.07713 | 25 | 14 | 52.F | 41.F | 21.796 | -77.661 | 19 | 5 | 14.F | 12.F | -216.663 | 16722. | 46.873 |
| FEB | 0.37390 | 11 | 14 | 52.F | 50.F | 41.414 | -62.654 | 20 | 7 | 8.F | 6.F | -235.768 | 15114. | 46.873 |
| MAR | 3.60544 | 16 | 14 | 67.F | 50.F | 112.198 | -42.990 | 25 | 6 | 28.F | 25.F | -146.981 | 17363. | 46.873 |
| APR | 16.78626 | 21 | 14 | 80.F | 62.F | 172.141 | -14.779 | 9 | 7 | 30.F | 25.F | -128.313 | 16399. | 46.873 |
| MAY | 40.09307 | 10 | 15 | 87.F | 69.F | 239.649 | -3.600 | 3 | 6 | 39.F | 33.F | -75.075 | 16722. | 46.873 |
| JUN | 76.69411 | 13 | 13 | 95.F | 75.F | 294.077 | -0.001 | 5 | 4 | 59.F | 55.F | -0.412 | 16720. | 46.873 |
| JUL | 89.18549 | 29 | 13 | 88.F | 73.F | 271.785 | 0.000 | | | | | 0.000 | 16401. | 46.873 |
| AUG | 84.33113 | 18 | 16 | 91.F | 77.F | 289.730 | -0.027 | 22 | 5 | 58.F | 57.F | -15.679 | 17363. | 46.873 |
| SEP | 50.85186 | 20 | 14 | 83.F | 72.F | 231.730 | -0.519 | 27 | 6 | 48.F | 46.F | -48.776 | 16399. | 46.873 |
| OCT | 17.04516 | 17 | 15 | 75.F | 65.F | 165.225 | -8.702 | 11 | 6 | 40.F | 35.F | -104.051 | 16401. | 46.873 |
| NOV | 7.39196 | 2 | 14 | 77.F | 70.F | 197.869 | -34.639 | 9 | 6 | 29.F | 25.F | -143.213 | 16079. | 46.873 |
| DEC | 0.68019 | 2 | 14 | 64.F | 53.F | 83.969 | -64.555 | 8 | 6 | 19.F | 17.F | -188.395 | 16722. | 46.873 |
| | --------- | | | | | ---------- | --------- | | | | | ---------- | -------- | ------- |
| TOTAL | 387.116 | | | | | | -310.126 | | | | | | 198416. | |
| MAX | | | | | | 294.077 | | | | | | -235.768 | | 46.873 |

ENTECH ENGINEERING    EZDOE - ELITE SOFTWARE DEVELOPMENT INC    DOE-2.1D    7/ 2/1996    11:14:27    SDL RUN 1
READING, PA 19603    4130.05 FT. MONMOUTH - MYER CENTER, NJ    FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24
REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 1SSTMDX    WEATHER FILE- NEWARK, NJ

| | - -Z O N E C O O L I N G- - | | - -Z O N E H E A T I N G - | | - - B A S E B O A R D S - - | | - - - -P R E - H E A T - - - | |
|---|---|---|---|---|---|---|---|---|
| MONTH | ZONE COIL COOLING ENERGY (MBTU) | MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR) | ZONE COIL HEATING ENERGY (MBTU) | MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR) | BASEBOARD HEATING ENERGY (MBTU) | MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR) | PRE-HEAT COIL ENERGY (MBTU) | MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR) |
| JAN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| FEB | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAR | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| APR | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAY | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| JUN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| JUL | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| AUG | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| SEP | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| OCT | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| NOV | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| DEC | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| TOTAL | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| MAX | | 0.000 | | 0.000 | | 0.000 | | 0.000 |

ENTECH ENGINEERING　　EZDOE - ELITE SOFTWARE DEVELOPMENT INC　　DOE-2.1D　7/ 2/1996　11:14:27　SDL RUN 1
READING, PA 19603　　4130.05 FT. MONMOUTH - MYER CENTER, NJ　FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24
REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR　　2SSTMDX　　WEATHER FILE- NEWARK, NJ

| | - - - - - - - - C O O L I N G - - - - - - - - | | | | | | - - - - - - - - H E A T I N G - - - - - - - - | | | | | | - - - E L E C - - - | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 145.87360 | 25 | 14 | 52.F | 41.F | 578.169 | -0.010 | 17 | 6 | 16.F | 14.F | -9.415 | 87286. | 225.654 |
| FEB | 138.91960 | 11 | 14 | 52.F | 50.F | 581.270 | -1.135 | 20 | 7 | 8.F | 6.F | -64.599 | 78894. | 225.654 |
| MAR | 191.02383 | 15 | 16 | 70.F | 61.F | 661.116 | 0.000 | | | | | 0.000 | 90664. | 225.654 |
| APR | 222.28549 | 29 | 15 | 77.F | 66.F | 748.915 | 0.000 | | | | | 0.000 | 85615. | 225.654 |
| MAY | 265.31262 | 26 | 16 | 86.F | 72.F | 828.226 | 0.000 | | | | | 0.000 | 87286. | 225.654 |
| JUN | 325.46805 | 13 | 13 | 95.F | 75.F | 878.494 | 0.000 | | | | | 0.000 | 87303. | 225.654 |
| JUL | 339.99118 | 19 | 14 | 85.F | 74.F | 874.793 | 0.000 | | | | | 0.000 | 85598. | 225.654 |
| AUG | 356.23941 | 18 | 16 | 91.F | 77.F | 918.542 | 0.000 | | | | | 0.000 | 90664. | 225.654 |
| SEP | 297.17816 | 20 | 12 | 80.F | 75.F | 882.966 | 0.000 | | | | | 0.000 | 85615. | 225.654 |
| OCT | 239.78165 | 17 | 14 | 74.F | 65.F | 728.905 | 0.000 | | | | | 0.000 | 85598. | 225.654 |
| NOV | 195.11839 | 2 | 15 | 77.F | 70.F | 811.208 | 0.000 | | | | | 0.000 | 83926. | 225.654 |
| DEC | 161.84395 | 2 | 14 | 64.F | 53.F | 638.487 | 0.000 | | | | | 0.000 | 87286. | 225.654 |
| TOTAL | 2879.038 | | | | | | -1.145 | | | | | | 1035801. | |
| MAX | | | | | | 918.542 | | | | | | -64.599 | | 225.654 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11:14:27 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24
REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 2SSTMDX WEATHER FILE- NEWARK, NJ

| | --ZONE COOLING-- | | --ZONE HEATING- | | --BASEBOARDS-- | | ----PRE-HEAT--- | |
|---|---|---|---|---|---|---|---|---|
| MONTH | ZONE COIL COOLING ENERGY (MBTU) | MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR) | ZONE COIL HEATING ENERGY (MBTU) | MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR) | BASEBOARD HEATING ENERGY (MBTU) | MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR) | PRE-HEAT COIL ENERGY (MBTU) | MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR) |
| JAN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| FEB | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAR | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| APR | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAY | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| JUN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| JUL | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| AUG | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| SEP | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| OCT | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| NOV | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| DEC | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| TOTAL | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| MAX | | 0.000 | | 0.000 | | 0.000 | | 0.000 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11:14:27 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24
REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 3SSTMDX WEATHER FILE- NEWARK, NJ

| | COOLING | | | | | | HEATING | | | | | | ELEC | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 77.37622 | 25 | 14 | 52.F | 41.F | 334.590 | -0.315 | 10 | 6 | 19.F | 17.F | -20.724 | 48432. | 132.453 |
| FEB | 74.61213 | 11 | 14 | 52.F | 50.F | 336.978 | -1.440 | 20 | 7 | 8.F | 6.F | -49.951 | 43777. | 132.453 |
| MAR | 103.42725 | 16 | 14 | 67.F | 50.F | 379.178 | 0.000 | | | | | 0.000 | 50409. | 132.453 |
| APR | 121.93380 | 29 | 15 | 77.F | 66.F | 434.784 | 0.000 | | | | | 0.000 | 47539. | 132.453 |
| MAY | 146.75310 | 26 | 14 | 83.F | 71.F | 480.741 | 0.000 | | | | | 0.000 | 48432. | 132.453 |
| JUN | 182.10710 | 13 | 13 | 95.F | 75.F | 510.773 | 0.000 | | | | | 0.000 | 48528. | 132.453 |
| JUL | 190.13220 | 19 | 14 | 85.F | 74.F | 509.947 | 0.000 | | | | | 0.000 | 47444. | 132.453 |
| AUG | 199.60895 | 18 | 16 | 91.F | 77.F | 524.492 | 0.000 | | | | | 0.000 | 50409. | 132.453 |
| SEP | 165.38913 | 20 | 12 | 80.F | 75.F | 513.124 | 0.000 | | | | | 0.000 | 47539. | 132.453 |
| OCT | 131.77885 | 17 | 14 | 74.F | 65.F | 423.871 | 0.000 | | | | | 0.000 | 47444. | 132.453 |
| NOV | 106.03567 | 2 | 15 | 77.F | 70.F | 472.374 | 0.000 | | | | | 0.000 | 46551. | 132.453 |
| DEC | 86.39047 | 2 | 14 | 64.F | 53.F | 370.396 | 0.000 | 26 | 5 | 27.F | 26.F | -0.164 | 48432. | 132.453 |
| TOTAL | 1585.548 | | | | | | -1.755 | | | | | | 574954. | |
| MAX | | | | | | 524.492 | | | | | | -49.951 | | 132.453 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11:14:27 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24
REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 3SSTMDX WEATHER FILE- NEWARK, NJ

| | - - Z O N E C O O L I N G - - | | - - Z O N E H E A T I N G - | | - - B A S E B O A R D S - - | | - - - - P R E - H E A T - - - | |
|---|---|---|---|---|---|---|---|---|
| MONTH | ZONE COIL COOLING ENERGY (MBTU) | MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR) | ZONE COIL HEATING ENERGY (MBTU) | MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR) | BASEBOARD HEATING ENERGY (MBTU) | MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR) | PRE-HEAT COIL ENERGY (MBTU) | MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR) |
| JAN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| FEB | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAR | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| APR | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAY | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| JUN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| JUL | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| AUG | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| SEP | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| OCT | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| NOV | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| DEC | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| TOTAL | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| MAX | | 0.000 | | 0.000 | | 0.000 | | 0.000 |

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 4SSTMDXCLN WEATHER FILE- NEWARK, NJ

| | --------COOLING-------- | | | | | | --------HEATING-------- | | | | | | ---ELEC--- | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 500.26315 | 22 | 2 | 61.F | 60.F | 1106.007 | -576.953 | 24 | 2 | 21.F | 17.F | -872.075 | 67026. | 137.539 |
| FEB | 464.38861 | 13 | 19 | 55.F | 54.F | 950.652 | -520.138 | 20 | 7 | 8.F | 6.F | -903.224 | 60563. | 137.539 |
| MAR | 563.25409 | 15 | 16 | 70.F | 61.F | 1152.873 | -552.842 | 25 | 5 | 28.F | 24.F | -834.289 | 68474. | 137.539 |
| APR | 641.08441 | 29 | 18 | 73.F | 68.F | 1367.235 | -518.495 | 10 | 7 | 38.F | 33.F | -827.410 | 65354. | 137.539 |
| MAY | 758.34039 | 23 | 17 | 84.F | 73.F | 1540.904 | -522.946 | 22 | 6 | 45.F | 44.F | -807.529 | 67026. | 137.539 |
| JUN | 879.61346 | 13 | 13 | 95.F | 75.F | 1624.603 | -485.631 | 5 | 6 | 57.F | 55.F | -775.239 | 66078. | 137.539 |
| JUL | 958.69739 | 19 | 16 | 88.F | 74.F | 1588.994 | -501.976 | 5 | 6 | 62.F | 57.F | -761.236 | 66302. | 137.539 |
| AUG | 964.41534 | 18 | 16 | 91.F | 77.F | 1707.726 | -499.306 | 22 | 5 | 58.F | 57.F | -775.107 | 68474. | 137.539 |
| SEP | 835.92218 | 20 | 12 | 80.F | 75.F | 1630.641 | -499.145 | 26 | 6 | 50.F | 46.F | -800.906 | 65354. | 137.539 |
| OCT | 723.15112 | 31 | 17 | 65.F | 65.F | 1287.364 | -538.966 | 11 | 6 | 40.F | 35.F | -824.686 | 66302. | 137.539 |
| NOV | 600.18353 | 2 | 13 | 76.F | 70.F | 1444.065 | -534.818 | 14 | 6 | 31.F | 27.F | -843.073 | 64630. | 137.539 |
| DEC | 528.75989 | 2 | 16 | 65.F | 52.F | 1004.819 | -569.150 | 8 | 6 | 19.F | 17.F | -862.770 | 67026. | 137.539 |
| TOTAL | 8418.079 | | | | | | -6320.369 | | | | | | 792596. | |
| MAX | | | | | | 1707.726 | | | | | | -903.224 | | 137.539 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11:14:27 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24
REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 4SSTMDXCLN WEATHER FILE- NEWARK, NJ

| | --ZONE COOLING-- | | --ZONE HEATING- | | --BASEBOARDS-- | | ----PRE-HEAT--- | |
|---|---|---|---|---|---|---|---|---|
| MONTH | ZONE COIL COOLING ENERGY (MBTU) | MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR) | ZONE COIL HEATING ENERGY (MBTU) | MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR) | BASEBOARD HEATING ENERGY (MBTU) | MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR) | PRE-HEAT COIL ENERGY (MBTU) | MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR) |
| JAN | 0.00000 | 0.000 | -576.95331 | -872.075 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| FEB | 0.00000 | 0.000 | -520.13782 | -903.224 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAR | 0.00000 | 0.000 | -552.84204 | -834.289 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| APR | 0.00000 | 0.000 | -518.49457 | -827.410 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAY | 0.00000 | 0.000 | -522.94629 | -807.529 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| JUN | 0.00000 | 0.000 | -485.63052 | -775.239 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| JUL | 0.00000 | 0.000 | -501.97604 | -761.236 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| AUG | 0.00000 | 0.000 | -499.30630 | -775.107 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| SEP | 0.00000 | 0.000 | -499.14542 | -800.906 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| OCT | 0.00000 | 0.000 | -538.96558 | -824.686 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| NOV | 0.00000 | 0.000 | -534.81830 | -843.073 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| DEC | 0.00000 | 0.000 | -569.15021 | -862.770 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| TOTAL | 0.000 | | -6320.369 | | 0.000 | | 0.000 | |
| MAX | | 0.000 | | -903.224 | | 0.000 | | 0.000 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11:14:27 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24
REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 4SSTMDXOFC WEATHER FILE- NEWARK, NJ

| | - - - - - - - - C O O L I N G - - - - - - - - | | | | | | - - - - - - - - H E A T I N G - - - - - - - - | | | | | | - - - E L E C - - - | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | HR | DRY- BULB TEMP | WET- BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | HR | DRY- BULB TEMP | WET- BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC- TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 10.90832 | 25 | 14 | 52.F | 41.F | 89.179 | -8.528 | 17 | 6 | 16.F | 14.F | -48.975 | 15285. | 43.561 |
| FEB | 11.66591 | 11 | 14 | 52.F | 50.F | 95.229 | -7.263 | 20 | 7 | 8.F | 6.F | -63.643 | 13816. | 43.561 |
| MAR | 18.96148 | 16 | 14 | 67.F | 50.F | 121.387 | -2.564 | 27 | 5 | 33.F | 28.F | -24.500 | 15919. | 43.561 |
| APR | 29.75221 | 19 | 14 | 76.F | 55.F | 143.136 | -0.368 | 10 | 6 | 36.F | 31.F | -18.001 | 15006. | 43.561 |
| MAY | 42.39846 | 26 | 14 | 83.F | 71.F | 174.839 | 0.000 | | | | | 0.000 | 15285. | 43.561 |
| JUN | 59.96085 | 13 | 13 | 95.F | 75.F | 195.725 | 0.000 | | | | | 0.000 | 15323. | 43.561 |
| JU[illegible] | 64.41993 | 29 | 13 | 88.F | 73.F | 188.440 | 0.000 | | | | | 0.000 | 14967. | 43.561 |
| AUG | 66.04947 | 19 | 14 | 87.F | 75.F | 192.594 | 0.000 | | | | | 0.000 | 15919. | 43.561 |
| SEP | 50.62909 | 20 | 12 | 80.F | 75.F | 179.669 | 0.000 | | | | | 0.000 | 15006. | 43.561 |
| OCT | 33.46150 | 17 | 14 | 74.F | 65.F | 145.125 | -0.047 | 11 | 6 | 40.F | 35.F | -12.152 | 14967. | 43.561 |
| NOV | 21.05668 | 2 | 14 | 77.F | 70.F | 163.038 | -1.346 | 14 | 6 | 31.F | 27.F | -26.696 | 14689. | 43.561 |
| DEC | 13.26033 | 2 | 14 | 64.F | 53.F | 113.413 | -5.802 | 27 | 6 | 21.F | 19.F | -42.900 | 15285. | 43.561 |
| | --------- | | | | | ---------- | --------- | | | | | ---------- | -------- | ------- |
| TOTAL | 422.524 | | | | | | -25.917 | | | | | | 181474. | |
| MAX | | | | | | 195.725 | | | | | | -63.643 | | 43.561 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11:14:27 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24
REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 4SSTMDXOFC WEATHER FILE- NEWARK, NJ

| | --ZONE COOLING-- | | --ZONE HEATING- | | --BASEBOARDS-- | | ----PRE-HEAT--- | |
|---|---|---|---|---|---|---|---|---|
| MONTH | ZONE COIL COOLING ENERGY (MBTU) | MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR) | ZONE COIL HEATING ENERGY (MBTU) | MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR) | BASEBOARD HEATING ENERGY (MBTU) | MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR) | PRE-HEAT COIL ENERGY (MBTU) | MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR) |
| JAN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| FEB | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAR | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| APR | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAY | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| JUN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| JUL | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| AUG | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| SEP | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| OCT | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| NOV | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| DEC | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| TOTAL | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| MAX | | 0.000 | | 0.000 | | 0.000 | | 0.000 |

REPORT- PV-A EQUIPMENT SIZES
WEATHER FILE- NEWARK, NJ

| EQUIPMENT | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STM-BOILER | 3.174 | 1 | 1 | | | | | | | | | | | | | | | |
| DHW-HEATER | 0.000 | 1 | 1 | | | | | | | | | | | | | | | |
| HERM-REC-CHLR | 4.552 | 1 | 1 | | | | | | | | | | | | | | | |

| HEATING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| STM-BOILER | 10303.9 | 100.0 |
| DHW-HEATER | 0.0 | 0.0 |
| LOAD SATISFIED | 10303.9 | 100.0 |
| TOTAL LOAD ON PLANT | 10303.9 | |

| COOLING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HERM-REC-CHLR | 15871.3 | 100.0 |
| LOAD SATISFIED | 15871.3 | 100.0 |
| TOTAL LOAD ON PLANT | 15871.3 | |

| ELECTRICAL LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| ELECTRICITY | 21934.1 | 100.0 |
| LOAD SATISFIED | 21934.1 | 100.0 |
| TOTAL LOAD ON PLANT | 21934.1 | |

SUMMARY OF LOADS MET

| TYPE OF LOAD | TOTAL LOAD (MBTU) | LOAD SATISFIED (MBTU) | TOTAL OVERLOAD (MBTU) | PEAK OVERLOAD (MBTU) | HOURS OVERLOADED |
|---|---|---|---|---|---|
| HEATING LOADS | 10303.9 | 10303.9 | 0.000 | 0.000 | 0 |
| COOLING LOADS | 15871.3 | 15871.3 | 0.000 | 0.000 | 0 |
| ELECTRICAL LOADS | 21934.1 | 21934.1 | 0.000 | 0.000 | 0 |

REPORT- PS-H EQUIPMENT USE STATISTICS WEATHER FILE- NEWARK, NJ

| E Q U I P M E N T | AVG OPER RATIO | MAX LOAD (MBTU) | MON | DAY | HR | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STM-BOILER | 0.371 | 3.174 | 2 | 20 | 3 | 3.174 | 8760 | | | | | | | | |
| DHW-HEATER | 0.000 | 0.000 | 0 | 0 | 0 | 0.000 | 0 | | | | | | | | |
| HERM-REC-CHLR | 0.398 | 4.552 | 8 | 18 | 16 | 4.552 | 8760 | | | | | | | | |

BB1
EXISTING
Off-Peak

| MMDDHH | 0SSTMDX TOT FAN ELECTRIC KW ----(33) | 1SSTMDX TOT FAN ELECTRIC KW ----(33) | 2SSTMDX TOT FAN ELECTRIC KW ----(33) | 3SSTMDX TOT FAN ELECTRIC KW ----(33) | 4SSTMDXC LN TOT FAN ELECTRIC KW ----(33) |
|---|---|---|---|---|---|
| MONTHLY SUMMARY (JAN) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 9049.063 | 3929.703 | 11290.217 | 6589.162 | 24846.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (FEB) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 8166.226 | 3546.317 | 10188.731 | 5946.316 | 22422.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (MAR) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 8607.644 | 3738.010 | 10739.474 | 6267.740 | 23634.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (APR) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 8607.644 | 3738.010 | 10739.475 | 6267.739 | 23634.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (MAY) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 9049.063 | 3929.703 | 11290.217 | 6589.161 | 24846.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (JUN) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 8386.935 | 3642.164 | 10464.104 | 6107.028 | 23028.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (JUL) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 9269.771 | 4025.550 | 11565.588 | 6749.873 | 25452.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |

| | 0SSTMDX | 1SSTMDX | 2SSTMDX | 3SSTMDX | 4SSTMDXC LN |
|---|---|---|---|---|---|
| | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW |
| | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) |
| MONTHLY SUMMARY (AUG) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 8607.644 | 3738.010 | 10739.474 | 6267.739 | 23634.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (SEP) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 8607.644 | 3738.010 | 10739.475 | 6267.740 | 23634.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (OCT) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 9269.771 | 4025.550 | 11565.588 | 6749.873 | 25452.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (NOV) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 8828.353 | 3833.857 | 11014.846 | 6428.450 | 24240.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (DEC) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 9049.062 | 3929.703 | 11290.217 | 6589.162 | 24846.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| YEARLY SUMMARY | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 105498.813 | 45814.586 | 131627.406 | 76819.984 | 289668.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |

| E Q U I P M E N T | SIZE (MBTU/H) | NUMBER INSTD | AVAIL | SIZE (MBTU/H) | NUMBER INSTD | AVAIL | SIZE (MBTU/H) | NUMBER INSTD | AVAIL | SIZE (MBTU/H) | NUMBER INSTD | AVAIL | SIZE (MBTU/H) | NUMBER INSTD | AVAIL | SIZE (MBTU/H) | NUMBER INSTD | AVAIL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STM-BOILER | 3.174 | 1 | 1 | | | | | | | | | | | | | | | |
| DHW-HEATER | 0.000 | 1 | 1 | | | | | | | | | | | | | | | |
| HERM-REC-CHLR | 4.552 | 1 | 1 | | | | | | | | | | | | | | | |

| HEATING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| STM-BOILER | 10303.9 | 100.0 |
| DHW-HEATER | 0.0 | 0.0 |
| LOAD SATISFIED | 10303.9 | 100.0 |
| TOTAL LOAD ON PLANT | 10303.9 | |

| COOLING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HERM-REC-CHLR | 15871.3 | 100.0 |
| LOAD SATISFIED | 15871.3 | 100.0 |
| TOTAL LOAD ON PLANT | 15871.3 | |

| ELECTRICAL LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| ELECTRICITY | 21934.1 | 100.0 |
| LOAD SATISFIED | 21934.1 | 100.0 |
| TOTAL LOAD ON PLANT | 21934.1 | |

SUMMARY OF LOADS MET

| TYPE OF LOAD | TOTAL LOAD (MBTU) | LOAD SATISFIED (MBTU) | TOTAL OVERLOAD (MBTU) | PEAK OVERLOAD (MBTU) | HOURS OVERLOADED |
|---|---|---|---|---|---|
| HEATING LOADS | 10303.9 | 10303.9 | 0.000 | 0.000 | 0 |
| COOLING LOADS | 15871.3 | 15871.3 | 0.000 | 0.000 | 0 |
| ELECTRICAL LOADS | 21934.1 | 21934.1 | 0.000 | 0.000 | 0 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11:14:27 PDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24
REPORT- PS-H EQUIPMENT USE STATISTICS WEATHER FILE- NEWARK, NJ

| EQUIPMENT | AVG OPER RATIO | MAX LOAD (MBTU) | MON | DAY | HR | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STM-BOILER | 0.371 | 3.174 | 2 | 20 | 3 | 3.174 | 8760 | | | | | | | | |
| DHW-HEATER | 0.000 | 0.000 | 0 | 0 | 0 | 0.000 | 0 | | | | | | | | |
| HERM-REC-CHLR | 0.398 | 4.552 | 8 | 18 | 16 | 4.552 | 8760 | | | | | | | | |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11:14:27 PDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24
REPORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE WEATHER FILE- NEWARK, NJ

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL | NATURAL-GAS |
|---|---|---|---|
| CATEGORY OF USE | | | |
| SPACE HEAT | 582.98 | 15721.18 | 0.00 |
| SPACE COOL | 8734.99 | 0.00 | 0.00 |
| HVAC AUX | 4965.52 | 0.00 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 | 0.00 |
| LIGHTS | 3040.82 | 0.00 | 0.00 |
| VERT TRANS | 0.00 | 0.00 | 0.00 |
| MISC EQUIP | 4610.08 | 0.00 | 0.00 |
| TOTAL | 21934.39 | 15721.18 | 0.00 |

TOTAL SITE ENERGY 37655.27 MBTU 318.3 KBTU/SQFT-YR GROSS-AREA 318.3 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 81589.31 MBTU 689.7 KBTU/SQFT-YR GROSS-AREA 689.7 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 0.0
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

| MMDDHH | HERM-REC -CHLR LOAD BTU/HR ----( 1) | HERM-REC -CHLR ELECTRIC USE BTU/HR ----( 3) | HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR ----(18) | STM-BOIL ER LOAD BTU/HR ----( 1) | STM-BOIL ER ELECTRIC USE BTU/HR ----( 3) |
|---|---|---|---|---|---|
| MONTHLY SUMMARY (JAN) | | | | | |
| MN | 691875. | 553860. | 415125. | 1262853. | 69826. |
| MX | 1776538. | 1006540. | 682813. | 2976898. | 69826. |
| SM | 478364480. | 377932192. | 281947008. | 974971008. | 34354464. |
| AV | 972286. | 768155. | 573063. | 1981648. | 69826. |
| MONTHLY SUMMARY (FEB) | | | | | |
| MN | 632960. | 506556. | 379776. | 1151333. | 69826. |
| MX | 1413205. | 953701. | 682813. | 3173915. | 69826. |
| SM | 438156896. | 346102944. | 258160144. | 892538304. | 31002810. |
| AV | 986840. | 779511. | 581442. | 2010221. | 69826. |
| MONTHLY SUMMARY (MAR) | | | | | |
| MN | 908338. | 727898. | 545003. | 1053380. | 69826. |
| MX | 1901428. | 1024457. | 682813. | 2323188. | 69826. |
| SM | 517894272. | 404728928. | 300986720. | 826835776. | 32678638. |
| AV | 1106612. | 864805. | 643134. | 1766743. | 69826. |
| MONTHLY SUMMARY (APR) | | | | | |
| MN | 937265. | 751183. | 562359. | 747265. | 65759. |
| MX | 2109139. | 1059606. | 682813. | 2174689. | 69826. |
| SM | 629455552. | 438190752. | 316353888. | 635568704. | 32663578. |
| AV | 1344991. | 936305. | 675970. | 1358053. | 69794. |
| MONTHLY SUMMARY (MAY) | | | | | |
| MN | 1090128. | 874349. | 654077. | 704509. | 61997. |
| MX | 2899371. | 1210732. | 682813. | 1648098. | 69826. |
| SM | 789316544. | 485240512. | 335833568. | 511592896. | 33919784. |
| AV | 1604302. | 986261. | 682589. | 1039823. | 68943. |
| MONTHLY SUMMARY (JUN) | | | | | |
| MN | 1384177. | 949434. | 682813. | 701395. | 61723. |
| MX | 3163240. | 1274939. | 682813. | 1045441. | 69826. |
| SM | 927032768. | 482290688. | 311362752. | 364100672. | 30655348. |
| AV | 2032967. | 1057655. | 682813. | 798466. | 67227. |
| MONTHLY SUMMARY (JUL) | | | | | |
| MN | 1542191. | 972581. | 682813. | 703557. | 61913. |
| MX | 3262543. | 1275740. | 682813. | 881605. | 69826. |
| SM | 1128647808. | 551956416. | 344137792. | 381745984. | 33474764. |
| AV | 2239381. | 1095152. | 682813. | 757433. | 66418. |

| | HERM-REC -CHLR LOAD BTU/HR ----( 1) | HERM-REC -CHLR ELECTRIC USE BTU/HR ----( 3) | HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR ----(18) | STM-BOIL ER LOAD BTU/HR ----( 1) | STM-BOIL ER ELECTRIC USE BTU/HR ----( 3) |
|---|---|---|---|---|---|
| MONTHLY SUMMARY (AUG) | | | | | |
| MN | 1432806. | 956579. | 682813. | 655344. | 57670. |
| MX | 3592429. | 1322721. | 682813. | 1002767. | 69826. |
| SM | 1034400000. | 507029920. | 319556512. | 360379136. | 31248418. |
| AV | 2210257. | 1083397. | 682813. | 770041. | 66770. |
| MONTHLY SUMMARY (SEP) | | | | | |
| MN | 1217109. | 924744. | 682813. | 719861. | 63348. |
| MX | 2931510. | 1223276. | 682813. | 1180907. | 69826. |
| SM | 904879552. | 484514816. | 319556512. | 379770752. | 31949278. |
| AV | 1933503. | 1035288. | 682813. | 811476. | 68268. |
| MONTHLY SUMMARY (OCT) | | | | | |
| MN | 1043358. | 836645. | 626015. | 745039. | 65563. |
| MX | 2352478. | 1139826. | 682813. | 1691400. | 69826. |
| SM | 753210816. | 486767168. | 343803584. | 521949024. | 35091444. |
| AV | 1494466. | 965808. | 682150. | 1035613. | 69626. |
| MONTHLY SUMMARY (NOV) | | | | | |
| MN | 892407. | 715077. | 535444. | 731343. | 64358. |
| MX | 2334289. | 1100857. | 682813. | 2016580. | 69826. |
| SM | 593284160. | 435893920. | 319190752. | 683342848. | 33483558. |
| AV | 1236009. | 908112. | 664981. | 1423631. | 69757. |
| MONTHLY SUMMARY (DEC) | | | | | |
| MN | 739836. | 592389. | 443902. | 925172. | 69826. |
| MX | 1539367. | 972169. | 682813. | 2353679. | 69826. |
| SM | 512530048. | 400700064. | 298113696. | 898600512. | 34354464. |
| AV | 1041728. | 814431. | 605922. | 1826424. | 69826. |
| YEARLY SUMMARY | | | | | |
| MN | 632960. | 506556. | 379776. | 655344. | 57670. |
| MX | 3592429. | 1322721. | 682813. | 3173915. | 69826. |
| SM | 8707173376. | 5401348096. | 3749003264. | 7431395840. | 394876544. |
| AV | 1517987. | 941658. | 653592. | 1295571. | 68842. |

READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24
SR_1 = HOURLY-REPORT



BB1 EXISTING
ON-PEAK

| MMDDHH | 0SSTMDX | 1SSTMDX | 2SSTMDX | 3SSTMDX | 4SSTMDXC LN |
|---|---|---|---|---|---|
| | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW |
| | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) |
| MONTHLY SUMMARY (JAN) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 4634.884 | 2012.775 | 5782.794 | 3374.935 | 12726.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (FEB) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 4193.466 | 1821.082 | 5232.052 | 3053.513 | 11514.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (MAR) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 5076.302 | 2204.468 | 6333.536 | 3696.357 | 13938.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (APR) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 4634.884 | 2012.775 | 5782.794 | 3374.935 | 12726.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (MAY) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 4634.884 | 2012.775 | 5782.794 | 3374.935 | 12726.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (JUN) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 4855.593 | 2108.621 | 6058.165 | 3535.646 | 13332.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (JUL) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 4414.175 | 1916.928 | 5507.423 | 3214.224 | 12120.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 10: 7:40 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24
SR_1 = HOURLY-REPORT PAGE 2- 1

| | 0SSTMDX | 1SSTMDX | 2SSTMDX | 3SSTMDX | 4SSTMDXC LN |
|---|---|---|---|---|---|
| | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW |
| | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) |
| MONTHLY SUMMARY (AUG) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 5076.302 | 2204.468 | 6333.536 | 3696.357 | 13938.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (SEP) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 4634.884 | 2012.775 | 5782.794 | 3374.935 | 12726.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (OCT) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 4414.175 | 1916.928 | 5507.423 | 3214.224 | 12120.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (NOV) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 4414.175 | 1916.928 | 5507.423 | 3214.224 | 12120.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (DEC) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 4634.884 | 2012.775 | 5782.794 | 3374.935 | 12726.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| YEARLY SUMMARY | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 55618.609 | 24153.299 | 69393.523 | 40499.219 | 152712.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |

| EQUIPMENT | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STM-BOILER | 3.174 | 1 | 1 | | | | | | | | | | | | | | | |
| DHW-HEATER | 0.000 | 1 | 1 | | | | | | | | | | | | | | | |
| HERM-REC-CHLR | 4.552 | 1 | 1 | | | | | | | | | | | | | | | |

| HEATING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| STM-BOILER | 10303.9 | 100.0 |
| DHW-HEATER | 0.0 | 0.0 |
| LOAD SATISFIED | 10303.9 | 100.0 |
| TOTAL LOAD ON PLANT | 10303.9 | |

| COOLING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HERM-REC-CHLR | 15871.3 | 100.0 |
| LOAD SATISFIED | 15871.3 | 100.0 |
| TOTAL LOAD ON PLANT | 15871.3 | |

| ELECTRICAL LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| ELECTRICITY | 21934.1 | 100.0 |
| LOAD SATISFIED | 21934.1 | 100.0 |
| TOTAL LOAD ON PLANT | 21934.1 | |

SUMMARY OF LOADS MET

| TYPE OF LOAD | TOTAL LOAD (MBTU) | LOAD SATISFIED (MBTU) | TOTAL OVERLOAD (MBTU) | PEAK OVERLOAD (MBTU) | HOURS OVERLOADED |
|---|---|---|---|---|---|
| HEATING LOADS | 10303.9 | 10303.9 | 0.000 | 0.000 | 0 |
| COOLING LOADS | 15871.3 | 15871.3 | 0.000 | 0.000 | 0 |
| ELECTRICAL LOADS | 21934.1 | 21934.1 | 0.000 | 0.000 | 0 |

| E Q U I P M E N T | AVG OPER RATIO | MAX LOAD (MBTU) | MON | DAY | HR | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STM-BOILER | 0.371 | 3.174 | 2 | 20 | 3 | 3.174 | 8760 | | | | | | | | |
| DHW-HEATER | 0.000 | 0.000 | 0 | 0 | 0 | 0.000 | 0 | | | | | | | | |
| HERM-REC-CHLR | 0.398 | 4.552 | 8 | 18 | 16 | 4.552 | 8760 | | | | | | | | |

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL | NATURAL-GAS |
|---|---|---|---|
| CATEGORY OF USE | | | |
| SPACE HEAT | 582.98 | 15721.18 | 0.00 |
| SPACE COOL | 8734.99 | 0.00 | 0.00 |
| HVAC AUX | 4965.52 | 0.00 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 | 0.00 |
| LIGHTS | 3040.82 | 0.00 | 0.00 |
| VERT TRANS | 0.00 | 0.00 | 0.00 |
| MISC EQUIP | 4610.08 | 0.00 | 0.00 |
| TOTAL | 21934.39 | 15721.18 | 0.00 |

TOTAL SITE ENERGY 37655.27 MBTU 318.3 KBTU/SQFT-YR GROSS-AREA 318.3 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 81589.31 MBTU 689.7 KBTU/SQFT-YR GROSS-AREA 689.7 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 0.0
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

| MMDDHH | HERM-REC -CHLR LOAD BTU/HR ----( 1) | HERM-REC -CHLR ELECTRIC USE BTU/HR ----( 3) | HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR ----(18) | STM-BOIL ER LOAD BTU/HR ----( 1) | STM-BOIL ER ELECTRIC USE BTU/HR ----( 3) |
|---|---|---|---|---|---|
| MONTHLY SUMMARY (JAN) | | | | | |
| MN | 1090060. | 874295. | 654036. | 863170. | 69826. |
| MX | 2092040. | 1051559. | 682813. | 2574966. | 69826. |
| SM | 396929760. | 246212368. | 172026960. | 395541120. | 17596188. |
| AV | 1575118. | 977033. | 682647. | 1569608. | 69826. |
| MONTHLY SUMMARY (FEB) | | | | | |
| MN | 1066818. | 855555. | 640091. | 927113. | 69826. |
| MX | 2137164. | 1057932. | 682813. | 2179558. | 69826. |
| SM | 378973952. | 225648704. | 155638624. | 326407872. | 15920361. |
| AV | 1662167. | 989687. | 682626. | 1431614. | 69826. |
| MONTHLY SUMMARY (MAR) | | | | | |
| MN | 1409930. | 953220. | 682813. | 606995. | 53416. |
| MX | 2595265. | 1132922. | 682813. | 2029272. | 69826. |
| SM | 503283328. | 279652096. | 188456384. | 341751648. | 19098404. |
| AV | 1823490. | 1013232. | 682813. | 1238231. | 69197. |
| MONTHLY SUMMARY (APR) | | | | | |
| MN | 1487801. | 964636. | 682813. | 574664. | 50570. |
| MX | 3085316. | 1226198. | 682813. | 1702598. | 69826. |
| SM | 543496640. | 268037312. | 172068864. | 228300048. | 16277278. |
| AV | 2156733. | 1063640. | 682813. | 905953. | 64592. |
| MONTHLY SUMMARY (MAY) | | | | | |
| MN | 1663845. | 990265. | 682813. | 567689. | 49957. |
| MX | 3828865. | 1365767. | 682813. | 1323294. | 69826. |
| SM | 634489920. | 283589248. | 172068864. | 181199008. | 15047886. |
| AV | 2517817. | 1125354. | 682813. | 719044. | 59714. |
| MONTHLY SUMMARY (JUN) | | | | | |
| MN | 2060614. | 1047111. | 682813. | 560475. | 49322. |
| MX | 4349201. | 1502434. | 682813. | 725163. | 63814. |
| SM | 825904000. | 324826144. | 180262624. | 162180864. | 14271916. |
| AV | 3128424. | 1230402. | 682813. | 614321. | 54060. |
| MONTHLY SUMMARY (JUL) | | | | | |
| MN | 2249004. | 1077488. | 682813. | 559788. | 49261. |
| MX | 4166256. | 1432733. | 682813. | 665167. | 58535. |
| SM | 797411840. | 303306304. | 163875104. | 145724320. | 12823739. |
| AV | 3322549. | 1263776. | 682813. | 607185. | 53432. |

| | HERM-REC -CHLR LOAD BTU/HR ----( 1) | HERM-REC -CHLR ELECTRIC USE BTU/HR ----( 3) | HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR ----(18) | STM-BOIL ER LOAD BTU/HR ----( 1) | STM-BOIL ER ELECTRIC USE BTU/HR ----( 3) |
|---|---|---|---|---|---|
| MONTHLY SUMMARY (AUG) | | | | | |
| MN | 2200348. | 1066827. | 682813. | 558474. | 49146. |
| MX | 4552086. | 1491854. | 682813. | 686967. | 60453. |
| SM | 930409472. | 350816256. | 188456384. | 167946592. | 14779300. |
| AV | 3371049. | 1271073. | 682813. | 608502. | 53548. |
| MONTHLY SUMMARY (SEP) | | | | | |
| MN | 1840372. | 1015714. | 682813. | 551735. | 48553. |
| MX | 4068729. | 1368927. | 682813. | 899579. | 69826. |
| SM | 709604608. | 293925536. | 172068864. | 160190304. | 14081494. |
| AV | 2815891. | 1166371. | 682813. | 635676. | 55879. |
| MONTHLY SUMMARY (OCT) | | | | | |
| MN | 1639723. | 986768. | 682813. | 595594. | 52412. |
| MX | 3273143. | 1241670. | 682813. | 1284848. | 69826. |
| SM | 549318592. | 259346032. | 163875104. | 172466240. | 14611193. |
| AV | 2288828. | 1080609. | 682813. | 718609. | 60880. |
| MONTHLY SUMMARY (NOV) | | | | | |
| MN | 1424527. | 955364. | 682813. | 586544. | 51616. |
| MX | 3531256. | 1284191. | 682813. | 1668507. | 69826. |
| SM | 474993984. | 248784352. | 163875104. | 238648512. | 16093686. |
| AV | 1979142. | 1036601. | 682813. | 994369. | 67057. |
| MONTHLY SUMMARY (DEC) | | | | | |
| MN | 1219585. | 925111. | 682813. | 624499. | 54956. |
| MX | 2427751. | 1098571. | 682813. | 1991260. | 69826. |
| SM | 419273440. | 249506352. | 172068864. | 352206816. | 17513208. |
| AV | 1663784. | 990105. | 682813. | 1397646. | 69497. |
| YEARLY SUMMARY | | | | | |
| MN | 1066818. | 855555. | 640091. | 551735. | 48553. |
| MX | 4552086. | 1502434. | 682813. | 2574966. | 69826. |
| SM | 7164089344. | 3333650688. | 2064741632. | 2872563456. | 188114656. |
| AV | 2369077. | 1102398. | 682785. | 949922. | 62207. |

INPUT LOADS ..

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                 $-------------------------------------$
                 $ E Z - D O E   L O A D S   I N P U T $
                 $-------------------------------------$

                    $ GENERAL PROJECT DATA

TITLE   LINE-1 *         ENTECH  ENGINEERING          *
        LINE-2 *EZDOE - ELITE SOFTWARE DEVELOPMENT INC*
        LINE-3 *     READING,      PA      19603      *

        LINE-4 *4130.05 FT. MONMOUTH - MYER CENTER, NJ  *
        LINE-5 *FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH * ..

ABORT                 ERRORS  ..
DIAGNOSTIC            WARNINGS ..
LOADS-REPORT          VERIFICATION=(LV-A,LV-B)
                      SUMMARY=(LS-C,LS-D,LS-F)   ..
BUILDING-LOCATION     ALTITUDE = 15.
                      X-REF = 0.0
                      Y-REF = 0.0   ..
RUN-PERIOD            JAN 1 1994 THRU DEC 31 1994  ..

                    $ SCHEDULES

D[illegible]FULON    =DAY-SCHEDULE  (1,24) (1.) ..

DWKFULON12 =DAY-SCHEDULE  (1,6) (0.)
                          (7,18) (1.)
                          (19,24) (0.) ..

D24FULOFF  =DAY-SCHEDULE  (1,24) (0.) ..

DOCCUP01   =DAY-SCHEDULE  (1,6) (0.07)
                          (7,8) (0.7,0.9)
                          (9,14) (1.)
                          (15,18) (0.9,0.7,0.25,0.15)
                          (19,24) (0.07) ..

d24occofhr =DAY-SCHEDULE  (1,24) (0.07) ..

DWKLITE1   =DAY-SCHEDULE  (1,6) (0.1)
                          (7,8) (0.5,0.9)
                          (9,14) (1.)
                          (15,18) (0.9,0.7,0.25,0.15)
                          (19,24) (0.1) ..

DNOTLITE1  =DAY-SCHEDULE  (1,24) (0.1) ..

DINFILWIN1 =DAY-SCHEDULE  (1,24) (0.8) ..

[illegible]FILSUM1 =DAY-SCHEDULE  (1,24) (0.8) ..

DEQPAWKDAY =DAY-SCHEDULE  (1,7) (0.15)
                          (8,19) (0.5)
                          (20,24) (0.15) ..
```

```
DEQPAWKEND =DAY-SCHEDULE  (1,24) (0.15) ..

W24FULON7D =WEEK-SCHEDULE  (ALL) D24FULON  ..

WOCC01     =WEEK-SCHEDULE  (WD)  DOCCUP01
                           (WEH) d24occofhr  ..

WLITE1     =WEEK-SCHEDULE  (WD)  DWKLITE1
                           (WEH) DNOTLITE1  ..

WINFILWIN1 =WEEK-SCHEDULE  (ALL) DINFILWIN1  ..

WINFILSUM1 =WEEK-SCHEDULE  (ALL) DINFILSUM1  ..

WEQUIPA    =WEEK-SCHEDULE  (WD)  DEQPAWKDAY
                           (WEH) DEQPAWKEND  ..


$ 24 HR FULON 7D/WK WK1
Y24FULON7D =SCHEDULE THRU DEC 31 W24FULON7D  ..

$ Y LOADS OCCUP SCH 01
YOCC01     =SCHEDULE THRU DEC 31 WOCC01  ..

$ YR LIGHTING SCH 1/.1
YLITE1     =SCHEDULE THRU DEC 31 WLITE1  ..

$ YR INFIL SCHD 1
YINFIL1    =SCHEDULE THRU MAY 15 WINFILWIN1
                     THRU OCT 15 WINFILSUM1
                     THRU DEC 31 WINFILWIN1  ..

$ YR SCHD EQUIP A .50/.15
YEQUIPSCHA =SCHEDULE THRU DEC 31 WEQUIPA  ..


                     $ CONSTRUCTION TYPES


 $ ROOF CON1 MAIN ROOF
ROOFCON1 =CONSTRUCTION   U-VALUE =  0.100  ..

 $ EXTERIOR WAL1 TYP
EXWAL1   =CONSTRUCTION   U-VALUE =  0.080  ..

 $ INTERIOR WALL 1 TYP
INTWAL1  =CONSTRUCTION   U-VALUE =  0.480
                          ABSORPTANCE = 0.000  ..

 $ EXTERIOR DOOR TYP 01 U=.4
[illegible]DR01   =CONSTRUCTION   U-VALUE =  0.400  ..

 $ UNDERGRND WALL 1
UWAL1    =CONSTRUCTION   U-VALUE =  0.100
                          ABSORPTANCE = 0.500  ..
```

```
GLTYP1    =GLASS-TYPE      SHADING-COEF = 0.560
                           PANES = 1
                           GLASS-CONDUCTANCE =  0.520  ..


                     $ SPACE DESCRIPTION

1LDXHT      =SPACE     AREA = 16950.0  VOLUME = 283065.0
                       TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                       PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                       PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                       LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 4.0
                       LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                       EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 10.0
                       INF-METHOD = NONE   ..

        E-W       HEIGHT = 22.3  WIDTH = 356.0  CONS = EXWAL1
                  AZIMUTH = 135   ..

          WINDOW HEIGHT = 2.7  WIDTH = 288.4  G-T = GLTYP1 ..

        E-W       HEIGHT = 22.3  WIDTH = 266.0  CONS = EXWAL1
                  AZIMUTH = 315   ..

          WINDOW HEIGHT = 2.7  WIDTH = 215.5  G-T = GLTYP1 ..

        E-W       HEIGHT = 22.3  WIDTH = 71.0  CONS = EXWAL1
                  AZIMUTH = 90   ..

          WINDOW HEIGHT = 2.7  WIDTH = 57.5  G-T = GLTYP1 ..


1LDXNOHT    =SPACE     AREA = 9601.0  VOLUME = 160336.7
                       TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                       PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                       PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                       LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 4.0
                       LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                       EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 10.0
                       INF-METHOD = NONE   ..

        E-W       HEIGHT = 22.3  WIDTH = 113.0  CONS = EXWAL1
                  AZIMUTH = 315   ..

          WINDOW HEIGHT = 2.7  WIDTH = 91.5  G-T = GLTYP1 ..

        E-W       HEIGHT = 22.3  WIDTH = 25.0  CONS = EXWAL1
                  AZIMUTH = 225   ..

          WINDOW HEIGHT = 2.7  WIDTH = 20.3  G-T = GLTYP1 ..

        E-W       HEIGHT = 22.3  WIDTH = 42.0  CONS = EXWAL1
                  AZIMUTH = 315   ..

          WINDOW HEIGHT = 2.7  WIDTH = 34.0  G-T = GLTYP1 ..

        E-W       HEIGHT = 22.3  WIDTH = 10.0  CONS = EXWAL1
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                    AZIMUTH = 315   ..

             WINDOW HEIGHT = 2.7  WIDTH = 8.1  G-T = GLTYP1 ..

2[illegible]        =SPACE     AREA = 21192.0  VOLUME = 204927.0
                           TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                           PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                           PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                           LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 4.0
                           LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                           EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 10.0
                           INF-METHOD = NONE   ..

3LDX        =SPACE     AREA = 14457.0  VOLUME = 139800.0
                           TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                           PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                           PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                           LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 4.0
                           LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                           EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 10.0
                           INF-METHOD = NONE   ..

4LDX        =SPACE     AREA = 35153.0  VOLUME = 339930.0
                           TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                           PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                           PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                           LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 5.0
                           LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                           EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 10.0
                           INF-METHOD = NONE   ..

                ROOF         HEIGHT = 817.5  WIDTH = 100.0  CONS = ROOFCON1
                             TILT = 0   ..

1LHWONLY    =SPACE     AREA = 25161.0  VOLUME = 421464.0
                           TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                           PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                           PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                           LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 2.0
                           LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                           EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 0.7
                           INF-METHOD = AIR-CHANGE  AIR-CHANGES/HR = 1.0
                           INF-SCHEDULE = YINFIL1   ..

                E-W          HEIGHT = 22.3  WIDTH = 192.0  CONS = EXWAL1
                             AZIMUTH = 45   ..

                  WINDOW HEIGHT = 2.7  WIDTH = 155.5  G-T = GLTYP1 ..

                E-W          HEIGHT = 22.3  WIDTH = 96.0  CONS = EXWAL1
                             AZIMUTH = 315   ..

                  WINDOW HEIGHT = 2.7  WIDTH = 77.8  G-T = GLTYP1 ..

                E-W          HEIGHT = 22.3  WIDTH = 155.0  CONS = EXWAL1
                             AZIMUTH = 270   ..
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```
                WINDOW HEIGHT = 2.7  WIDTH = 125.6  G-T = GLTYP1 ..

              E-W       HEIGHT = 22.3  WIDTH = 103.0  CONS = EXWAL1
                        AZIMUTH = 225    ..

                WINDOW HEIGHT = 2.7  WIDTH = 83.4  G-T = GLTYP1 ..

              E-W       HEIGHT = 22.3  WIDTH = 60.0  CONS = EXWAL1
                        AZIMUTH = 135    ..

                WINDOW HEIGHT = 2.7  WIDTH = 48.6  G-T = GLTYP1 ..

              E-W       HEIGHT = 22.3  WIDTH = 40.0  CONS = EXWAL1
                        AZIMUTH = 270    ..

                WINDOW HEIGHT = 2.7  WIDTH = 20.0  G-T = GLTYP1 ..

              E-W       HEIGHT = 22.3  WIDTH = 40.0  CONS = EXWAL1
                        AZIMUTH = 225    ..

                WINDOW HEIGHT = 2.7  WIDTH = 20.0  G-T = GLTYP1 ..

03LHWELV   =SPACE     AREA = 250.0  VOLUME = 4189.0
                      MULTIPLIER = 4.0  TEMPERATURE = (73.)
                      ZONE-TYPE = CONDITIONED  PEOPLE-SCHEDULE = YOCC01
                      AREA/PERSON = 294.0  PEOPLE-HG-LAT = 200.0
                      PEOPLE-HG-SENS = 250.0  LIGHTING-TYPE = REC-FLUOR-RV
                      LIGHTING-W/SQFT = 2.0  LIGHT-TO-SPACE = 1.0
                      LIGHTING-SCHEDULE = YLITE1
                      EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 0.7
                      INF-METHOD = AIR-CHANGE  AIR-CHANGES/HR = 1.0
                      INF-SCHEDULE = YINFIL1   ..

              E-W       HEIGHT = 15.3  WIDTH = 40.0  CONS = EXWAL1
                        AZIMUTH = 270    ..

              E-W       HEIGHT = 15.3  WIDTH = 40.0  CONS = EXWAL1
                        AZIMUTH = 225    ..

4LHWELV    =SPACE     AREA = 250.0  VOLUME = 2438.0
                      TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                      PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                      PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                      LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 2.0
                      LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                      EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 0.7
                      INF-METHOD = AIR-CHANGE  AIR-CHANGES/HR = 1.0
                      INF-SCHEDULE = YINFIL1   ..

              E-W       HEIGHT = 15.3  WIDTH = 40.0  CONS = EXWAL1
                        AZIMUTH = 270    ..

              E-W       HEIGHT = 15.3  WIDTH = 40.0  CONS = EXWAL1
                        AZIMUTH = 225    ..

              ROOF      HEIGHT = 25.0  WIDTH = 10.0  CONS = ROOFCON1
                        TILT = 0    ..
```

```
0LDXHT      =SPACE     AREA = 1872.0  VOLUME = 18720.0
                       TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                       PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                       PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                       LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 4.0
                       LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                       EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 5.0
                       INF-METHOD = AIR-CHANGE  INF-SCHEDULE = YINFIL1   ..

                E-W      HEIGHT = 14.0  WIDTH = 48.0  CONS = EXWAL1
                         AZIMUTH = 90    ..

                  WINDOW HEIGHT = 2.7  WIDTH = 38.4  G-T = GLTYP1 ..

               U-W      HEIGHT = 39.0  WIDTH = 96.0  CONS = UWAL1 ..

0LDXONLY    =SPACE     AREA = 2847.0  VOLUME = 28470.0
                       TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                       PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                       PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                       LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 4.0
                       LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                       EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 5.0
                       INF-METHOD = NONE    ..

                E-W      HEIGHT = 14.0  WIDTH = 73.0  CONS = EXWAL1
                         AZIMUTH = 315    ..

                  WINDOW HEIGHT = 2.7  WIDTH = 73.0  G-T = GLTYP1 ..

               U-W      HEIGHT = 39.0  WIDTH = 73.0  CONS = UWAL1 ..

END  ..
COMPUTE LOADS   ..

INPUT SYSTEMS   ..

                   $---------------------------------------$
                   $ E Z - D O E   S Y S T E M S   I N P U T $
                   $---------------------------------------$

                      $ GENERAL PROJECT DATA

TITLE  LINE-1 *          ENTECH  ENGINEERING          *
       LINE-2 *EZDOE - ELITE SOFTWARE DEVELOPMENT INC*
       LINE-3 *     READING,      PA        19603     *

       LINE-4 *4130.05 FT. MONMOUTH - MYER CENTER, NJ  *
       LINE-5 *FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH * ..
ABORT                ERRORS  ..
DIAGNOSTIC           WARNINGS ..
SYSTEMS-REPORT       VERIFICATION=(SV-A)
                     SUMMARY=(SS-A,SS-B,SS-D,SS-F,SS-K)
                     REPORT-FREQUENCY = MONTHLY   ..
```

$ SCHEDULES

```
DS24ON1     =DAY-SCHEDULE  (1,24) (1.) ..
DS24OFF0    =DAY-SCHEDULE  (1,24) (0.) ..
DLOTMPNOHT  =DAY-SCHEDULE  (1,24) (55.) ..
DHITMPNOCL  =DAY-SCHEDULE  (1,24) (90.) ..
DSHTSET1    =DAY-SCHEDULE  (1,24) (72.) ..
DSCLGSET1   =DAY-SCHEDULE  (1,24) (75.) ..
DSHTSET270  =DAY-SCHEDULE  (1,24) (70.) ..
OFFPK_SD    =DAY-SCHEDULE  (1,7) (1.)
                           (8,19) (0.)
                           (20,24) (1.) ..
ONPK_SD     =DAY-SCHEDULE  (1,7) (0.)
                           (8,19) (1.)
                           (20,24) (0.) ..
OFFPK_SEND  =DAY-SCHEDULE  (1,24) (1.) ..

W24FULON    =WEEK-SCHEDULE  (ALL) DS24ON1  ..

WHTSET1     =WEEK-SCHEDULE  (ALL) DSHTSET1  ..

WCLSET1     =WEEK-SCHEDULE  (ALL) DSCLGSET1  ..

WLOTMPNOHT  =WEEK-SCHEDULE  (ALL) DLOTMPNOHT  ..

WHITMPNOCL  =WEEK-SCHEDULE  (ALL) DHITMPNOCL  ..

W24FULOFF   =WEEK-SCHEDULE  (ALL) DS24OFF0  ..

WHTSET270   =WEEK-SCHEDULE  (ALL) DSHTSET270  ..

WSNOCOOL    =WEEK-SCHEDULE  (ALL) DHITMPNOCL  ..

OFFPK_SW    =WEEK-SCHEDULE  (WD)  OFFPK_SD
                            (WEH) OFFPK_SEND  ..

ONPK_SW     =WEEK-SCHEDULE  (WD)  ONPK_SD
                            (WEH) DS24OFF0  ..


$ YR SCHD FULON 24HRS 7D
YSON247D    =SCHEDULE THRU DEC 31 W24FULON  ..

$ YR SCHD HEATING SEAS 1
YSHTSEAS1   =SCHEDULE THRU MAY 15 W24FULON
                      THRU OCT 15 W24FULOFF
                      THRU DEC 31 W24FULON  ..

$ YR SCH COOL SEASON 1
YSCLSEAS1   =SCHEDULE THRU MAY 15 W24FULOFF
                      THRU OCT 15 W24FULON
                      THRU DEC 31 W24FULOFF  ..

$ YRSCH HTSET1 72 /NON0
YHTSET1     =SCHEDULE THRU MAY 15 WHTSET1
                      THRU OCT 15 WHTSET1
                      THRU DEC 31 WHTSET1  ..

$ YRSCH COLSET 72/NON 130
YCLSET1     =SCHEDULE THRU MAY 15 WCLSET1
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                       THRU OCT 15 WCLSET1
                       THRU DEC 31 WCLSET1  ..

$ YR SCHD 24H7D FUL OF
YS[illegible]7DOF    =SCHEDULE THRU DEC 31 W24FULOFF  ..

$ YRSCH HTSET2-70 /NON0
YHTSET2-70 =SCHEDULE THRU MAY 15 WSHTSET270
                     THRU OCT 15 WHITMPNOCL
                     THRU DEC 31 WSHTSET270  ..

$ YRSYS SCH NO COOL SUM
YSHWNOCOOL =SCHEDULE THRU MAY 15 WSHTSET270
                     THRU OCT 15 WSNOCOOL
                     THRU DEC 31 WSHTSET270  ..

OFFPK_SYR  =SCHEDULE THRU DEC 31 OFFPK_SW  ..

ONPK_SYR   =SCHEDULE THRU DEC 31 ONPK_SW  ..


                    $ ZONE DESCRIPTION

1LDXHT     =ZONE    DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                    HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                    ZONE-TYPE = CONDITIONED
                    THERMOSTAT-TYPE = PROPORTIONAL
                    BASEBOARD-CTRL = THERMOSTATIC
                    BASEBOARD-RATING = -466500.
                    SIZING-OPTION = FROM-LOADS   ..

1LDXNOHT   =ZONE    DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                    HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                    ZONE-TYPE = CONDITIONED
                    THERMOSTAT-TYPE = PROPORTIONAL
                    SIZING-OPTION = FROM-LOADS   ..

2LDX       =ZONE    DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                    HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                    ZONE-TYPE = CONDITIONED
                    THERMOSTAT-TYPE = PROPORTIONAL
                    SIZING-OPTION = FROM-LOADS   ..

3LDX       =ZONE    DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                    HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                    ZONE-TYPE = CONDITIONED
                    THERMOSTAT-TYPE = PROPORTIONAL
                    SIZING-OPTION = FROM-LOADS   ..

4LDX       =ZONE    DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                    HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                    ZONE-TYPE = CONDITIONED
                    THERMOSTAT-TYPE = PROPORTIONAL
                    SIZING-OPTION = FROM-LOADS   ..

1LHWONLY   =ZONE    DESIGN-HEAT-T = 70.0  DESIGN-COOL-T = 90.0
                    HEAT-TEMP-SCH = YHTSET2-70   COOL-TEMP-SCH = YSHWNOCOOL
                    ZONE-TYPE = CONDITIONED
                    THERMOSTAT-TYPE = PROPORTIONAL
```

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                 BASEBOARD-CTRL = THERMOSTATIC
                 BASEBOARD-RATING = -514500.  ASSIGNED-CFM = 1.
                 SIZING-OPTION = FROM-LOADS   ..

03LHWELV   =ZONE    DESIGN-HEAT-T = 70.0  DESIGN-COOL-T = 90.0
                 HEAT-TEMP-SCH = YHTSET2-70  COOL-TEMP-SCH = YSHWNOCOOL
                 ZONE-TYPE = CONDITIONED
                 THERMOSTAT-TYPE = PROPORTIONAL
                 BASEBOARD-CTRL = THERMOSTATIC
                 BASEBOARD-RATING = -60000.  ASSIGNED-CFM = 1.
                 SIZING-OPTION = FROM-LOADS   ..

4LHWELV    =ZONE    DESIGN-HEAT-T = 70.0  DESIGN-COOL-T = 90.0
                 HEAT-TEMP-SCH = YHTSET2-70  COOL-TEMP-SCH = YSHWNOCOOL
                 ZONE-TYPE = CONDITIONED
                 THERMOSTAT-TYPE = PROPORTIONAL
                 BASEBOARD-CTRL = THERMOSTATIC
                 BASEBOARD-RATING = -60000.  ASSIGNED-CFM = 1.
                 SIZING-OPTION = FROM-LOADS   ..

0LDXHT     =ZONE    DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                 HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                 ZONE-TYPE = CONDITIONED
                 THERMOSTAT-TYPE = PROPORTIONAL
                 BASEBOARD-CTRL = THERMOSTATIC
                 BASEBOARD-RATING = -36000.  $IZING-OPTION = FROM-LOADS   ..

0LDXONLY   =ZONE    DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                 HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                 ZONE-TYPE = CONDITIONED
                 THERMOSTAT-TYPE = PROPORTIONAL
                 SIZING-OPTION = FROM-LOADS   ..


                 $ SYSTEM DESCRIPTION

1SDXHT     =SYSTEM    SYSTEM-TYPE = SZRH
                   MAX-SUPPLY-T = 190.0  MIN-SUPPLY-T = 55.0
                   HEATING-SCHEDULE = YSHTSEAS1
                   COOLING-SCHEDULE = YSON247D  HEAT-SET-T = 190.0
                   PREHEAT-T = 0.0  OA-CONTROL = FIXED
                   MAX-OA-FRACTION = 0.0  SUPPLY-DELTA-T = 2.4
                   SUPPLY-KW = 0.00078  NIGHT-CYCLE-CTRL = STAY-OFF
                   NIGHT-VENT-DT = 0.0  MIN-CFM-RATIO = 1.0
                   HEATING-CAPACITY = -1.  PREHEAT-SOURCE = HOT-WATER
                   RETURN-AIR-PATH = DUCT
                   ZONE-NAMES = (1LDXHT)  ..

1SDX       =SYSTEM    SYSTEM-TYPE = SZRH
                   MAX-SUPPLY-T = 190.0  MIN-SUPPLY-T = 55.0
                   HEATING-SCHEDULE = YS247DOF
                   COOLING-SCHEDULE = YSON247D  HEAT-SET-T = 55.0
                   PREHEAT-T = 0.0  OA-CONTROL = FIXED
                   MAX-OA-FRACTION = 0.0  SUPPLY-DELTA-T = 2.4
                   SUPPLY-KW = 0.00078  NIGHT-CYCLE-CTRL = STAY-OFF
                   NIGHT-VENT-DT = 0.0  MIN-CFM-RATIO = 1.0
                   HEATING-CAPACITY = -1.  PREHEAT-SOURCE = HOT-WATER
                   RETURN-AIR-PATH = DUCT
                   ZONE-NAMES = (1LDXNOHT)  ..
```

```
2SDX        =SYSTEM    SYSTEM-TYPE = SZRH
                       MAX-SUPPLY-T = 190.0  MIN-SUPPLY-T = 55.0
                       HEATING-SCHEDULE = YS247DOF
                       COOLING-SCHEDULE = YSON247D  HEAT-SET-T = 55.0
                       PREHEAT-T = 0.0  OA-CONTROL = FIXED
                       MAX-OA-FRACTION = 0.0  SUPPLY-DELTA-T = 2.42
                       SUPPLY-KW = 0.000783  NIGHT-CYCLE-CTRL = STAY-OFF
                       NIGHT-VENT-DT = 0.0  MIN-CFM-RATIO = 1.0
                       HEATING-CAPACITY = -1.  PREHEAT-SOURCE = HOT-WATER
                       RETURN-AIR-PATH = DUCT
                       ZONE-NAMES = (2LDX)  ..

3SDX        =SYSTEM    SYSTEM-TYPE = SZRH
                       MAX-SUPPLY-T = 190.0  MIN-SUPPLY-T = 55.0
                       HEATING-SCHEDULE = YS247DOF
                       COOLING-SCHEDULE = YSON247D  HEAT-SET-T = 55.0
                       PREHEAT-T = 0.0  ECONO-LIMIT-T = 55.0
                       OA-CONTROL = FIXED  MAX-OA-FRACTION = 0.0
                       SUPPLY-DELTA-T = 2.42  SUPPLY-KW = 0.000783
                       NIGHT-CYCLE-CTRL = STAY-OFF  NIGHT-VENT-DT = 0.0
                       MIN-CFM-RATIO = 1.0  HEATING-CAPACITY = -1.
                       PREHEAT-SOURCE = HOT-WATER  RETURN-AIR-PATH = DUCT
                       ZONE-NAMES = (3LDX)  ..

4SDX        =SYSTEM    SYSTEM-TYPE = SZRH
                       MAX-SUPPLY-T = 190.0  MIN-SUPPLY-T = 55.0
                       HEATING-SCHEDULE = YS247DOF
                       COOLING-SCHEDULE = YSON247D  HEAT-SET-T = 55.0
                       PREHEAT-T = 0.0  OA-CONTROL = FIXED
                       MAX-OA-FRACTION = 0.0  SUPPLY-DELTA-T = 2.42
                       SUPPLY-KW = 0.000783  NIGHT-CYCLE-CTRL = STAY-OFF
                       NIGHT-VENT-DT = 0.0  MIN-CFM-RATIO = 1.0
                       HEATING-CAPACITY = -1.  PREHEAT-SOURCE = HOT-WATER
                       RETURN-AIR-PATH = DUCT
                       ZONE-NAMES = (4LDX)  ..

1SHWONLY    =SYSTEM    SYSTEM-TYPE = SZRH
                       MAX-SUPPLY-T = 190.0  MIN-SUPPLY-T = 55.0
                       HEATING-SCHEDULE = YSHTSEAS1
                       COOLING-SCHEDULE = YS247DOF  HEAT-SET-T = 55.0
                       PREHEAT-T = 0.0  OA-CONTROL = FIXED
                       MAX-OA-FRACTION = 0.0  FAN-SCHEDULE = YSHTSEAS1
                       SUPPLY-DELTA-T = 2.4  SUPPLY-KW = 0.00078
                       NIGHT-CYCLE-CTRL = STAY-OFF  NIGHT-VENT-DT = 0.0
                       MIN-CFM-RATIO = 1.0  COOLING-CAPACITY = 1.
                       HEATING-CAPACITY = -1.  PREHEAT-SOURCE = HOT-WATER
                       RETURN-AIR-PATH = DUCT
                       ZONE-NAMES = (1LHWONLY)  ..

04SHWELEV   =SYSTEM    SYSTEM-TYPE = SZRH
                       MAX-SUPPLY-T = 190.0  MIN-SUPPLY-T = 55.0
                       HEATING-SCHEDULE = YSHTSEAS1
                       COOLING-SCHEDULE = YS247DOF  HEAT-SET-T = 55.0
                       PREHEAT-T = 0.0  OA-CONTROL = FIXED
                       MAX-OA-FRACTION = 0.0  FAN-SCHEDULE = YSHTSEAS1
                       SUPPLY-DELTA-T = 2.4  SUPPLY-KW = 0.00078
                       NIGHT-CYCLE-CTRL = STAY-OFF  NIGHT-VENT-DT = 0.0
                       MIN-CFM-RATIO = 1.0  COOLING-CAPACITY = 1.
                       HEATING-CAPACITY = -1.  PREHEAT-SOURCE = HOT-WATER
                       RETURN-AIR-PATH = DUCT
```

```
                        ZONE-NAMES = (03LHWELV, 4LHWELV)  ..

0SDXHT     =SYSTEM     SYSTEM-TYPE = SZRH
                       MAX-SUPPLY-T = 190.0  MIN-SUPPLY-T = 55.0
                       HEATING-SCHEDULE = YSHTSEAS1
                       COOLING-SCHEDULE = YSON247D  HEAT-SET-T = 55.0
                       PREHEAT-T = 0.0  OA-CONTROL = FIXED
                       MAX-OA-FRACTION = 0.0  SUPPLY-DELTA-T = 2.4
                       SUPPLY-KW = 0.00078  NIGHT-CYCLE-CTRL = STAY-OFF
                       NIGHT-VENT-DT = 0.0  MIN-CFM-RATIO = 1.0
                       HEATING-CAPACITY = -1.  PREHEAT-SOURCE = HOT-WATER
                       RETURN-AIR-PATH = DUCT
                       ZONE-NAMES = (0LDXHT)  ..

0SDXNOHT   =SYSTEM     SYSTEM-TYPE = SZRH
                       MAX-SUPPLY-T = 190.0  MIN-SUPPLY-T = 55.0
                       HEATING-SCHEDULE = YS247DOF
                       COOLING-SCHEDULE = YSON247D  HEAT-SET-T = 55.0
                       PREHEAT-T = 0.0  OA-CONTROL = FIXED
                       MAX-OA-FRACTION = 0.0  SUPPLY-DELTA-T = 2.4
                       SUPPLY-KW = 0.00078  NIGHT-CYCLE-CTRL = STAY-OFF
                       NIGHT-VENT-DT = 0.0  MIN-CFM-RATIO = 1.0
                       HEATING-CAPACITY = -1.  PREHEAT-SOURCE = HOT-WATER
                       RETURN-AIR-PATH = DUCT
                       ZONE-NAMES = (0LDXONLY)  ..

                     $ HOURLY REPORT DESCRIPTION

S_1        =REPORT-BLOCK VARIABLE-TYPE = 1SDXHT
                         VARIABLE-LIST = (33) ..
S_2        =REPORT-BLOCK VARIABLE-TYPE = 1SDX
                         VARIABLE-LIST = (33) ..
S_3        =REPORT-BLOCK VARIABLE-TYPE = 2SDX
                         VARIABLE-LIST = (33) ..
S_4        =REPORT-BLOCK VARIABLE-TYPE = 3SDX
                         VARIABLE-LIST = (33) ..
S_5        =REPORT-BLOCK VARIABLE-TYPE = 4SDX
                         VARIABLE-LIST = (33) ..
S_6        =REPORT-BLOCK VARIABLE-TYPE = 1SHWONLY
                         VARIABLE-LIST = (33) ..
S_7        =REPORT-BLOCK VARIABLE-TYPE = 04SHWELEV
                         VARIABLE-LIST = (33) ..
S_8        =REPORT-BLOCK VARIABLE-TYPE = 0SDXHT
                         VARIABLE-LIST = (33) ..
S_9        =REPORT-BLOCK VARIABLE-TYPE = 0SDXNOHT
                         VARIABLE-LIST = (33) ..
RS_1       = HOURLY-REPORT  REPORT-SCHEDULE = OFFPK_SYR
                         REPORT-BLOCK = (S_1,S_2,S_3,S_4,S_5,S_6,S_7,S_8,S_9)
 ..
END  ..
COMPUTE SYSTEMS  ..

INPUT PLANT  ..

                 $-------------------------------------$
                 $ E Z - D O E   P L A N T S   I N P U T $
                 $-------------------------------------$
```

```
                   $ GENERAL PROJECT DATA

TITLE  LINE-1 *         ENTECH  ENGINEERING          *
       LINE-2 *EZDOE - ELITE SOFTWARE DEVELOPMENT INC*
       LINE-3 *     READING,      PA        19603     *

       LINE-4 *4130.05 FT. MONMOUTH - MYER CENTER, NJ  *
       LINE-5 *FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH * ..

ABORT                 ERRORS  ..
DIAGNOSTIC            WARNINGS ..
PLANT-REPORT          VERIFICATION=(PV-A)
                      SUMMARY=(PS-D,BEPS)
                      REPORT-FREQUENCY = MONTHLY  ..

                      $ SCHEDULES

D24FULON    =DAY-SCHEDULE  (1,24) (1.) ..

D24FULOF    =DAY-SCHEDULE  (1,24) (0.) ..

OFFPK_PD    =DAY-SCHEDULE  (1,7) (1.)
                           (8,19) (0.)
                           (20,24) (1.) ..

ONPK_PD     =DAY-SCHEDULE  (1,7) (0.)
                           (8,19) (1.)
                           (20,24) (0.) ..

OFFPK_PEND =DAY-SCHEDULE  (1,24) (1.) ..

W24FULON7D =WEEK-SCHEDULE  (ALL) D24FULON  ..

W24FULOF7D =WEEK-SCHEDULE  (ALL) D24FULOF  ..

OFFPK_PW    =WEEK-SCHEDULE  (WD)  OFFPK_PD
                            (WEH) OFFPK_PEND  ..

ONPK_PW     =WEEK-SCHEDULE  (WD)  ONPK_PD
                            (WEH) D24FULOF  ..


$ YRSCH FUL ON 24HR/7D
Y24FULON7D =SCHEDULE THRU DEC 31 W24FULON7D  ..

$ YRSCH HEATING SEAS1
YHTSEAS1    =SCHEDULE THRU MAY 15 W24FULON7D
                      THRU OCT 15 W24FULOF7D
                      THRU DEC 31 W24FULON7D  ..

$ YRSCH COOL SEAS1
YCLSEAS1    =SCHEDULE THRU MAY 15 W24FULOF7D
                      THRU OCT 15 W24FULON7D
                      THRU DEC 31 W24FULOF7D  ..

OFFPK_PYR   =SCHEDULE THRU DEC 31 OFFPK_PW  ..

ONPK_PYR    =SCHEDULE THRU DEC 31 ONPK_PW  ..
```

```
                    $ EQUIPMENT DESCRIPTION

STMBLR1      =PLANT-EQUIPMENT   TYPE = STM-BOILER
                         SIZE = -999.  ..

HRCCH1       =PLANT-EQUIPMENT   TYPE = HERM-REC-CHLR
                         SIZE = -999.  ..

DHW1         =PLANT-EQUIPMENT   TYPE = DHW-HEATER
                         SIZE = -999.  ..

PLANT-PARAMETERS         BOILER-CONTROL = STANDBY  HW-BOILER-HIR = 1.2
                         TWR-WTR-SET-POINT = 85.  TWR-CELL-MAX-GPM = 1.0
                         TWR-FAN-OFF-CFM = 0.1  CHILLER-CONTROL = STANDBY
                         HERM-REC-COND-TYPE = AIR  HERM-REC-COND-PWR = 0.15
                         CHILL-WTR-T = 55.  CCIRC-HEAD = 100.0
                         CCIRC-DESIGN-T-DROP = 5.0  HCIRC-HEAD = 90.0
                         HCIRC-DESIGN-T-DROP = 25.0    ..


PART-LOAD-RATIO    TYPE = HERM-REC-CHLR
                   MIN-RATIO         =  0.2500  MAX-RATIO          =  1.0000
                   OPERATING-RATIO   =  1.0000  ELEC-INPUT-RATIO   =  0.1600  ..

ENERGY-RESOURCE          RESOURCE = FUEL-OIL  ..
ENERGY-RESOURCE          RESOURCE = ELECTRICITY  ..
ENERGY-RESOURCE          RESOURCE = NATURAL-GAS  ..


                    $ HOURLY REPORT DESCRIPTION

P_1          =REPORT-BLOCK VARIABLE-TYPE = HERM-REC-CHLR
                           VARIABLE-LIST = (3,18)  ..
P_2          =REPORT-BLOCK VARIABLE-TYPE = STM-BOILER
                           VARIABLE-LIST = (3,4)  ..
RP_1         = HOURLY-REPORT  REPORT-SCHEDULE = OFFPK_PYR
                           REPORT-BLOCK = (P_1,P_2)
 ..
END  ..
COMPUTE PLANT ..
STOP ..
```

REPORT- LV-A GENERAL PROJECT AND BUILDING INPUT WEATHER FILE- NEWARK, NJ

---

PERIOD OF STUDY

| STARTING DATE | ENDING DATE | NUMBER OF DAYS |
|---|---|---|
| 1 JAN 1994 | 31 DEC 1994 | 365 |

SITE CHARACTERISTIC DATA

| STATION NAME | LATITUDE (DEG) | LONGITUDE (DEG) | ALTITUDE (FT) | TIME ZONE | BUILDING AZIMUTH (DEG) |
|---|---|---|---|---|---|
| NEWARK, NJ | 40.7 | 74.8 | 15. | 5 EST | 0.0 |

REPORT- LV-B SUMMARY OF SPACES OCCURRING IN THE PROJECT    WEATHER FILE- NEWARK, NJ

NUMBER OF SPACES 10    EXTERIOR 8    INTERIOR 2

| SPACE | SPACE MULT | SPACE TYPE | AZIMUTH | LIGHTING (WATT / SQFT ) | PEOPLE | EQUIP (WATT / SQFT ) | INFILTRATION METHOD | AIR CHANGES PER HOUR | AREA (SQFT ) | VOLUME (CUFT ) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1LDXHT | 1.0 | EXT | 0.0 | 4.00 | 57.7 | 10.00 | NO-INFILT. | 0.00 | 16950.00 | 283065.00 |
| 1LDXNOHT | 1.0 | EXT | 0.0 | 4.00 | 32.7 | 10.00 | NO-INFILT. | 0.00 | 9601.00 | 160336.70 |
| 2LDX | 1.0 | INT | 0.0 | 4.00 | 72.1 | 10.00 | NO-INFILT. | 0.00 | 21192.00 | 204927.00 |
| 3LDX | 1.0 | INT | 0.0 | 4.00 | 49.2 | 10.00 | NO-INFILT. | 0.00 | 14457.00 | 139800.00 |
| 4LDX | 1.0 | EXT | 0.0 | 5.00 | 119.6 | 10.00 | NO-INFILT. | 0.00 | 35153.00 | 339930.00 |
| 1LHWONLY | 1.0 | EXT | 0.0 | 2.00 | 85.6 | 0.70 | AIR-CHANGE | 1.00 | 25161.00 | 421464.00 |
| 03LHWELV | 4.0 | EXT | 0.0 | 2.00 | 0.9 | 0.70 | AIR-CHANGE | 1.00 | 250.00 | 4189.00 |
| 4LHWELV | 1.0 | EXT | 0.0 | 2.00 | 0.9 | 0.70 | AIR-CHANGE | 1.00 | 250.00 | 2438.00 |
| 0LDXHT | 1.0 | EXT | 0.0 | 4.00 | 6.4 | 5.00 | AIR-CHANGE | 0.00 | 1872.00 | 18720.00 |
| 0LDXONLY | 1.0 | EXT | 0.0 | 4.00 | 9.7 | 5.00 | NO-INFILT. | 0.00 | 2847.00 | 28470.00 |
| | | | | | ------- | | | | --------- | ---------- |
| BUILDING TOTALS | | | | | 434.5 | | | | 127733.00 | 1603339.75 |

ENTECH ENGINEERING    EZDOE - ELITE SOFTWARE DEVELOPMENT INC    DOE-2.1D  7/ 2/1996  11: 9:52  LDL RUN 1
READING, PA 19603    4130.05 FT. MONMOUTH - MYER CENTER, NJ  FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- LS-C BUILDING PEAK LOAD COMPONENTS    WEATHER FILE- NEWARK, NJ

---

*** BUILDING ***

| | | | | |
|---|---|---|---|---|
| FLOOR AREA | 128483 | SQFT | 11936 | SQMT |
| VOLUME | 1615907 | CUFT | 45762 | CUMT |

| | COOLING LOAD | | HEATING LOAD | |
|---|---|---|---|---|
| TIME | JUN 13 | 3PM | FEB 20 | 3AM |
| DRY-BULB TEMP | 98F | 37C | 10F | -12C |
| WET-BULB TEMP | 74F | 23C | 7F | -14C |

| | SENSIBLE | | LATENT | | SENSIBLE | |
|---|---|---|---|---|---|---|
| | (KBTU/H) | ( KW ) | (KBTU/H) | ( KW ) | (KBTU/H) | ( KW ) |
| WALLS | 81.385 | 23.836 | 0.000 | 0.000 | -101.427 | -29.705 |
| ROOFS | 331.822 | 97.182 | 0.000 | 0.000 | -492.283 | -144.177 |
| GLASS CONDUCTION | 29.286 | 8.577 | 0.000 | 0.000 | -50.890 | -14.905 |
| GLASS SOLAR | 96.624 | 28.299 | 0.000 | 0.000 | 10.021 | 2.935 |
| DOOR | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| INTERNAL SURFACES | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| UNDERGROUND SURFACES | -10.842 | -3.175 | 0.000 | 0.000 | -20.172 | -5.908 |
| OCCUPANTS TO SPACE | 90.468 | 26.496 | 78.663 | 23.038 | 4.056 | 1.188 |
| LIGHT TO SPACE | 1367.768 | 400.585 | 0.000 | 0.000 | 86.459 | 25.322 |
| EQUIPMENT TO SPACE | 1587.170 | 464.842 | 0.000 | 0.000 | 203.194 | 59.510 |
| PROCESS TO SPACE | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| INFILTRATION | 232.289 | 68.032 | 130.782 | 38.303 | -912.613 | -267.282 |
| TOTAL | 3805.971 | 1114.674 | 209.445 | 61.341 | -1273.655 | -373.022 |

| | | | | |
|---|---|---|---|---|
| TOTAL LOAD | 4015.416 KBTU/H | 1176.015 KW | -1273.655 KBTU/H | -373.022 KW |
| TOTAL LOAD / AREA | 31.25BTU/H.SQFT | 98.523 W /SQMT | 9.913BTU/H.SQFT | 31.251 W /SQMT |

NOTE 1) THE ABOVE LOADS EXCLUDE OUTSIDE VENTILATION AIR LOADS
2) TIMES GIVEN IN STANDARD TIME FOR THE LOCATION IN CONSIDERATION

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11: 9:52 LDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- LS-D BUILDING MONTHLY LOADS SUMMARY WEATHER FILE- NEWARK, NJ

| | - - - - - - - - C O O L I N G - - - - - - - - | | | | | | - - - - - - - - H E A T I N G - - - - - - - - | | | | | | - - - E L E C - - - | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 764.87653 | 28 | 14 | 37.F | 30.F | 2763.208 | -263.115 | 5 | 20 | 15.F | 12.F | -1183.963 | 325164. | 1003.650 |
| FEB | 714.90106 | 8 | 14 | 37.F | 30.F | 2755.603 | -223.215 | 20 | 3 | 10.F | 7.F | -1273.655 | 293965. | 1003.650 |
| MAR | 897.07300 | 16 | 14 | 67.F | 50.F | 3146.924 | -179.562 | 5 | 1 | 29.F | 24.F | -641.753 | 341826. | 1003.650 |
| APR | 954.42029 | 19 | 13 | 76.F | 55.F | 3476.269 | -76.586 | 9 | 3 | 32.F | 27.F | -584.333 | 320318. | 1003.650 |
| MAY | 1076.76624 | 10 | 13 | 87.F | 68.F | 3674.709 | -36.413 | 2 | 21 | 50.F | 39.F | -366.646 | 325163. | 1003.650 |
| JUN | 1216.21118 | 13 | 14 | 98.F | 74.F | 3805.970 | -3.826 | 14 | 23 | 55.F | 54.F | -133.062 | 328649. | 1003.650 |
| JUL | 1221.03735 | 13 | 13 | 90.F | 73.F | 3743.262 | -1.478 | 15 | 4 | 63.F | 60.F | -72.973 | 316832. | 1003.650 |
| AUG | [illegible]68.32874 | 18 | 13 | 93.F | 72.F | 3802.003 | -2.790 | 21 | 4 | 60.F | 59.F | -110.970 | 341826. | 1003.650 |
| SEP | 1096.32874 | 7 | 13 | 82.F | 64.F | 3559.754 | -9.838 | 23 | 4 | 55.F | 47.F | -163.770 | 320318. | 1003.650 |
| OCT | 956.81537 | 14 | 13 | 75.F | 61.F | 3399.395 | -46.571 | 25 | 5 | 41.F | 36.F | -449.884 | 316832. | 1003.650 |
| NOV | 834.06848 | 2 | 14 | 77.F | 70.F | 3269.255 | -115.507 | 25 | 6 | 38.F | 37.F | -625.698 | 311987. | 1003.650 |
| DEC | 791.99347 | 2 | 14 | 64.F | 53.F | 3031.096 | -234.832 | 26 | 7 | 25.F | 24.F | -749.837 | 325163. | 1003.650 |
| | --------- | | | | | ---------- | --------- | | | | | ---------- | -------- | ------- |
| TOTAL | 11792.819 | | | | | | -1193.733 | | | | | | 3868043. | |
| MAX | | | | | | 3805.970 | | | | | | -1273.655 | | 1003.650 |

ENTECH ENGINEERING    EZDOE - ELITE SOFTWARE DEVELOPMENT INC    DOE-2.1D    7/ 2/1996    11: 9:52  LDL RUN 1
READING,    PA    19603    4130.05 FT. MONMOUTH - MYER CENTER, NJ  FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- LS-F BUILDING MONTHLY LOAD COMPONENTS IN  MBTU    WEATHER FILE- NEWARK, NJ

| (UNI[illegible]BTU) | | WALLS | ROOFS | INT SUR | UND SUR | INFIL | GL CON | GL SOL | OCCUP | LIGHTS | EQUIP | SOURCE | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | HEATNG | -50.777 | -135.520 | 0.000 | -6.446 | -221.726 | -23.601 | 7.231 | 6.149 | 73.470 | 88.103 | 0.000 | -263.115 |
| JAN | SEN CL | -47.128 | -123.797 | 0.000 | -6.908 | -2.359 | -33.071 | 12.208 | 19.580 | 343.095 | 603.255 | 0.000 | 764.876 |
| | LAT CL | | | | | 0.000 | | | 15.947 | | 0.000 | 0.000 | 15.947 |
| | HEATNG | -42.955 | -101.342 | 0.000 | -6.847 | -193.664 | -20.514 | 8.985 | 5.202 | 59.837 | 68.081 | 0.000 | -223.215 |
| FEB | SEN CL | -40.029 | -114.899 | 0.000 | -6.703 | -3.055 | -28.634 | 14.300 | 18.122 | 317.869 | 557.930 | 0.000 | 714.901 |
| | LAT CL | | | | | 0.000 | | | 14.684 | | 0.000 | 0.000 | 14.684 |
| | HEATNG | -37.025 | -56.959 | 0.000 | -6.298 | -181.005 | -17.754 | 11.620 | 4.985 | 53.073 | 49.803 | 0.000 | -179.562 |
| MAR | SEN CL | -36.864 | -129.589 | 0.000 | -8.841 | -7.427 | -27.683 | 20.586 | 22.716 | 392.341 | 671.833 | 0.000 | 897.073 |
| | LAT CL | | | | | 0.215 | | | 18.422 | | 0.000 | 0.000 | 18.636 |
| | HEATNG | -20.406 | -11.900 | 0.000 | -4.267 | -85.849 | -9.635 | 8.723 | 2.761 | 26.962 | 17.024 | 0.000 | -76.586 |
| APR | SEN CL | -22.432 | -85.502 | 0.000 | -9.628 | -11.741 | -19.341 | 28.122 | 22.903 | 387.768 | 664.271 | 0.000 | 954.420 |
| | LAT CL | | | | | 2.501 | | | 18.447 | | 0.000 | 0.000 | 20.948 |
| | HEATNG | -11.177 | -0.673 | 0.000 | -1.390 | -47.522 | -5.224 | 6.550 | 1.637 | 15.218 | 6.170 | 0.000 | -36.413 |
| MAY | SEN CL | -10.322 | -35.454 | 0.000 | -9.824 | -3.783 | -12.756 | 37.890 | 24.101 | 401.528 | 685.384 | 0.000 | 1076.765 |
| | LAT CL | | | | | 12.891 | | | 19.453 | | 0.000 | 0.000 | 32.344 |
| | HEATNG | -2.526 | -0.052 | 0.000 | 0.000 | -6.224 | -0.988 | 1.270 | 0.304 | 3.129 | 1.260 | 0.000 | -3.826 |
| JUN | SEN CL | 4.149 | 30.820 | 0.000 | -7.816 | 9.116 | -4.553 | 40.557 | 26.256 | 424.337 | 693.345 | 0.000 | 1216.210 |
| | LAT CL | | | | | 40.284 | | | 21.073 | | 0.000 | 0.000 | 61.356 |
| | HEATNG | -0.916 | -0.026 | 0.000 | 0.000 | -2.614 | -0.282 | 0.364 | 0.123 | 1.315 | 0.557 | 0.000 | -1.478 |
| JUL | SEN CL | 10.311 | 51.721 | 0.000 | -5.356 | 16.391 | -1.342 | 42.541 | 24.762 | 403.475 | 678.534 | 0.000 | 1221.037 |
| | LAT CL | | | | | 53.322 | | | 19.795 | | 0.000 | 0.000 | 73.117 |
| | HEATNG | -2.013 | -0.051 | 0.000 | 0.000 | -4.074 | -0.696 | 0.654 | 0.209 | 2.205 | 0.975 | 0.000 | -2.790 |
| AUG | SEN CL | 5.603 | 31.722 | 0.000 | -3.630 | 10.701 | -3.647 | 38.272 | 27.440 | 442.248 | 719.621 | 0.000 | 1268.329 |
| | LAT CL | | | | | 49.949 | | | 22.022 | | 0.000 | 0.000 | 71.971 |
| | HEATNG | -5.122 | -0.107 | 0.000 | 0.000 | -14.638 | -2.014 | 2.111 | 0.716 | 6.753 | 2.462 | 0.000 | -9.838 |
| SEP | SEN CL | -6.770 | -16.536 | 0.000 | -3.366 | -7.793 | -9.711 | 31.133 | 24.889 | 406.859 | 677.623 | 0.000 | 1096.328 |
| | LAT CL | | | | | 31.379 | | | 20.004 | | 0.000 | 0.000 | 51.383 |
| | HEATNG | -15.842 | -3.754 | 0.000 | 0.000 | -54.698 | -6.920 | 5.787 | 1.944 | 18.392 | 8.519 | 0.000 | -46.571 |
| OCT | SEN CL | -20.801 | -86.592 | 0.000 | -4.874 | -13.309 | -17.888 | 22.742 | 22.881 | 385.288 | 669.369 | 0.000 | 956.816 |
| | LAT CL | | | | | 4.719 | | | 18.501 | | 0.000 | 0.000 | 23.220 |
| | HEATNG | -29.553 | -39.732 | 0.000 | -0.799 | -115.842 | -13.120 | 5.834 | 3.737 | 39.050 | 34.918 | 0.000 | -115.507 |
| NOV | SEN CL | -32.104 | -122.639 | 0.000 | -6.478 | -6.046 | -23.729 | 12.958 | 20.909 | 360.634 | 630.564 | 0.000 | 834.069 |
| | LAT CL | | | | | 5.363 | | | 16.901 | | 0.000 | 0.000 | 22.265 |
| | HEATNG | -45.484 | -100.413 | 0.000 | -3.742 | -212.262 | -20.903 | 6.229 | 5.794 | 65.101 | 70.848 | 0.000 | -234.832 |
| DEC | SEN CL | -42.775 | -133.418 | 0.000 | -6.818 | -2.372 | -30.559 | 11.272 | 20.054 | 353.689 | 622.921 | 0.000 | 791.993 |
| | LAT CL | | | | | 0.000 | | | 16.188 | | 0.000 | 0.000 | 16.188 |
| | HEATNG | -263.794 | -450.528 | 0.000 | -29.789 | -1140.108 | -121.650 | 65.358 | 33.561 | 364.507 | 348.729 | 0.000 | -1193.713 |
| TOT | SEN CL | -239.162 | -734.162 | 0.000 | -80.243 | -21.678 | -212.912 | 312.581 | 274.624 | 4619.205 | 7874.564 | 0.000 | 11792.817 |

MESSAGE LIST FROM SYSTEMS     PROGRAM

```
**WARNING***********************************************************************
        SYSTEM 1SDXHT          HAS ZERO OUTSIDE AIR FOR DESIGN CALCULATION

**WARNING***********************************************************************
        SYSTEM 1SDX            HAS ZERO OUTSIDE AIR FOR DESIGN CALCULATION

**WARNING***********************************************************************
          SYSTEM 1SDX            MAY HAVE INADEQUATE HEATING CAPABILIT Y
          (CHECK HEATING-CAPACITY,HEAT-SET-T,PRE-HEAT-T AND MAX-SUPPLY-T FOR CONSISTENCY)

**WARNING***********************************************************************
        SYSTEM 2SDX            HAS ZERO OUTSIDE AIR FOR DESIGN CALCULATION

**WARNING***********************************************************************
          SYSTEM 2SDX            MAY HAVE INADEQUATE HEATING CAPABILIT Y
          (CHECK HEATING-CAPACITY,HEAT-SET-T,PRE-HEAT-T AND MAX-SUPPLY-T FOR CONSISTENCY)

**WARNING***********************************************************************
        SYSTEM 3SDX            HAS ZERO OUTSIDE AIR FOR DESIGN CALCULATION

**WARNING***********************************************************************
          SYSTEM 3SDX            MAY HAVE INADEQUATE HEATING CAPABILIT Y
          (CHECK HEATING-CAPACITY,HEAT-SET-T,PRE-HEAT-T AND MAX-SUPPLY-T FOR CONSISTENCY)

**WARNING***********************************************************************
        SYSTEM 4SDX            HAS ZERO OUTSIDE AIR FOR DESIGN CALCULATION

**WARNING***********************************************************************
          SYSTEM 4SDX            MAY HAVE INADEQUATE HEATING CAPABILIT Y
          (CHECK HEATING-CAPACITY,HEAT-SET-T,PRE-HEAT-T AND MAX-SUPPLY-T FOR CONSISTENCY)

**WARNING***********************************************************************
        SYSTEM 1SHWONLY        HAS ZERO OUTSIDE AIR FOR DESIGN CALCULATION

**WARNING***********************************************************************
          SYSTEM 1SHWONLY        MAY HAVE INADEQUATE COOLING CAPABILITY
          (CHECK COOLING-CAPACITY AND MIN-SUPPLY-T FOR CONSISTENCY)

**WARNING***********************************************************************
        SYSTEM 04SHWELEV       HAS ZERO OUTSIDE AIR FOR DESIGN CALCULATION

**WARNING***********************************************************************
          SYSTEM 04SHWELEV       MAY HAVE INADEQUATE COOLING CAPABILITY
          (CHECK COOLING-CAPACITY AND MIN-SUPPLY-T FOR CONSISTENCY)

**WARNING***********************************************************************
        SYSTEM 0SDXHT          HAS ZERO OUTSIDE AIR FOR DESIGN CALCULATION

**WARNING***********************************************************************
          SYSTEM 0SDXHT          MAY HAVE INADEQUATE HEATING CAPABILIT Y
          (CHECK HEATING-CAPACITY,HEAT-SET-T,PRE-HEAT-T AND MAX-SUPPLY-T FOR CONSISTENCY)

**WARNING***********************************************************************
        SYSTEM 0SDXNOHT        HAS ZERO OUTSIDE AIR FOR DESIGN CALCULATION
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**WARNING********************************************************************
          SYSTEM OSDXNOHT         MAY HAVE INADEQUATE HEATING CAPABILIT Y
          (CHECK HEATING-CAPACITY,HEAT-SET-T,PRE-HEAT-T AND MAX-SUPPLY-T FOR CONSISTENCY)
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ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11: 9:52 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- SS-D PLANT MONTHLY LOADS SUMMARY FOR DEFAULT-PLANT WEATHER FILE- NEWARK, NJ

| | - - - - - - - - C O O L I N G - - - - - - - - | | | | | | - - - - - - - - H E A T I N G - - - - - - - - | | | | | | - - - E L E C - - - | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 1030.86877 | 28 | 14 | 37.F | 30.F | 2990.694 | -195.082 | 5 | 20 | 15.F | 12.F | -584.666 | 417931. | 1128.341 |
| FEB | 958.76001 | 11 | 14 | 52.F | 50.F | 3034.267 | -167.990 | 20 | 3 | 10.F | 7.F | -581.473 | 377755. | 1128.341 |
| MAR | 1184.26794 | 16 | 14 | 67.F | 50.F | 3266.959 | -140.064 | 5 | 1 | 29.F | 24.F | -531.706 | 434594. | 1128.341 |
| APR | 1225.55615 | 15 | 15 | 73.F | 55.F | 3496.059 | -48.435 | 9 | 4 | 32.F | 27.F | -457.452 | 410094. | 1128.341 |
| MAY | 1334.88306 | 10 | 13 | 85.F | 68.F | 3597.508 | -6.228 | 4 | 2 | 40.F | 35.F | -227.738 | 417930. | 1128.341 |
| JUN | 1431.97034 | 13 | 14 | 96.F | 73.F | 3710.452 | 0.000 | | | | | 0.000 | 418423. | 1128.337 |
| JUL | 1435.57861 | 12 | 13 | 87.F | 71.F | 3730.172 | 0.000 | | | | | 0.000 | 409597. | 1128.337 |
| AUG | [illegible]89.34998 | 12 | 14 | 87.F | 69.F | 3730.011 | 0.000 | | | | | 0.000 | 434592. | 1128.337 |
| SEP | 1342.88159 | 16 | 14 | 76.F | 63.F | 3545.524 | 0.000 | | | | | 0.000 | 410092. | 1128.337 |
| OCT | 1240.27942 | 14 | 14 | 75.F | 61.F | 3435.643 | -12.581 | 25 | 6 | 41.F | 36.F | -322.264 | 409598. | 1128.341 |
| NOV | 1113.56702 | 2 | 14 | 77.F | 70.F | 3359.911 | -85.671 | 25 | 6 | 38.F | 37.F | -476.418 | 401762. | 1128.341 |
| DEC | 1071.41553 | 2 | 14 | 64.F | 53.F | 3183.396 | -183.532 | 24 | 13 | 33.F | 29.F | -542.650 | 417931. | 1128.341 |
| TOTAL | 14859.358 | | | | | | -839.583 | | | | | | 4960114. | |
| MAX | | | | | | 3730.172 | | | | | | -584.666 | | 1128.341 |

ENTECH ENGINEERING    EZDOE - ELITE SOFTWARE DEVELOPMENT INC    DOE-2.1D    7/ 2/1996    11: 9:52  SDL RUN 1
READING,    PA    19603    4130.05 FT. MONMOUTH - MYER CENTER, NJ  FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- SS-A  SYSTEM MONTHLY LOADS SUMMARY FOR    1SDXHT    WEATHER FILE- NEWARK, NJ

| | - - - - - - - - C O O L I N G - - - - - - - - | | | | | | - - - - - - - - H E A T I N G - - - - - - - - | | | | | | - - - E L E C - - - | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 175.76674 | 28 | 14 | 37.F | 30.F | 508.361 | 0.000 | | | | | 0.000 | 65595. | 172.688 |
| FEB | 164.49419 | 23 | 14 | 39.F | 32.F | 512.493 | 0.000 | | | | | 0.000 | 59288. | 172.688 |
| MAR | 202.85103 | 16 | 14 | 67.F | 50.F | 561.898 | 0.000 | | | | | 0.000 | 68130. | 172.688 |
| APR | 210.12144 | 21 | 14 | 80.F | 62.F | 581.345 | 0.000 | | | | | 0.000 | 64338. | 172.688 |
| MAY | 228.43086 | 10 | 14 | 87.F | 68.F | 609.368 | 0.000 | | | | | 0.000 | 65595. | 172.688 |
| JUN | 242.29442 | 30 | 14 | 91.F | 74.F | 610.740 | 0.000 | | | | | 0.000 | 65605. | 172.688 |
| JUL | 243.20132 | 13 | 14 | 90.F | 73.F | 609.506 | 0.000 | | | | | 0.000 | 64328. | 172.688 |
| AUG | [illegible]51.53531 | 18 | 14 | 93.F | 72.F | 612.498 | 0.000 | | | | | 0.000 | 68130. | 172.688 |
| SEP | 227.46468 | 7 | 13 | 82.F | 65.F | 594.641 | 0.000 | | | | | 0.000 | 64338. | 172.688 |
| OCT | 211.08777 | 14 | 14 | 75.F | 61.F | 576.856 | 0.000 | | | | | 0.000 | 64328. | 172.688 |
| NOV | 188.37050 | 2 | 14 | 77.F | 70.F | 553.353 | 0.000 | | | | | 0.000 | 63070. | 172.688 |
| DEC | 181.37585 | 2 | 14 | 64.F | 53.F | 542.733 | 0.000 | | | | | 0.000 | 65595. | 172.688 |
| TOTAL | 2526.995 | | | | | | 0.000 | | | | | | 778322. | |
| MAX | | | | | | 612.498 | | | | | | 0.000 | | 172.688 |

ENTECH ENGINEERING    EZDOE - ELITE SOFTWARE DEVELOPMENT INC    DOE-2.1D  7/ 2/1996  11: 9:52  SDL RUN 1
READING, PA 19603    4130.05 FT. MONMOUTH - MYER CENTER, NJ  FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- SS-B  SYSTEM MONTHLY LOADS SUMMARY FOR  1SDXHT    WEATHER FILE- NEWARK, NJ

| MONTH | - -Z O N E C O O L I N G- - | | - -Z O N E H E A T I N G - | | - - B A S E B O A R D S - - | | - - - -P R E - H E A T - - - | |
|---|---|---|---|---|---|---|---|---|
| | ZONE COIL COOLING ENERGY (MBTU) | MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR) | ZONE COIL HEATING ENERGY (MBTU) | MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR) | BASEBOARD HEATING ENERGY (MBTU) | MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR) | PRE-HEAT COIL ENERGY (MBTU) | MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR) |
| JAN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| FEB | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAR | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| APR | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAY | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| JUN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| JUL | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| AUG | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| SEP | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| OCT | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| NOV | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| DEC | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| TOTAL | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| MAX | | 0.000 | | 0.000 | | 0.000 | | 0.000 |

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| | AVERAGE SPACE TEMP | | | | | AVERAGE TEMPERATURE DIFFERENCE | | | SUMMED TEMP DIFFERENCE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | ALL HOURS (F) | COOLING HOURS (F) | HEATING HOURS (F) | FAN ON HOURS (F) | FAN OFF HOURS (F) | BETWEEN OUTDOOR& ROOM AIR ALL HOURS (F) | BETWEEN OUTDOOR& ROOM AIR FAN ON HOURS (F) | BETWEEN OUTDOOR& ROOM AIR FAN OFF HOURS (F) | BETWEEN OUTDOOR& ROOM AIR HEATING HOURS (F) | BETWEEN OUTDOOR& ROOM AIR ALL HOURS (F) | HUMIDITY RATIO DIFFERENCE BETWEEN OUTDOOR AND ROOM AIR (FRAC.OR MULT. ) |
| JAN | 74.81 | 74.81 | | 74.81 | 0.00 | -43.45 | -43.45 | 0.00 | | 1346.87 | 0.00000 |
| FEB | 74.84 | 74.84 | | 74.84 | 0.00 | -41.62 | -41.62 | 0.00 | | 1165.24 | -0.00003 |
| MAR | 74.94 | 74.94 | | 74.94 | 0.00 | -34.43 | -34.43 | 0.00 | | 1067.33 | -0.00002 |
| APR | 75.00 | 75.00 | | 75.00 | 0.00 | -22.10 | -22.10 | 0.00 | | 664.92 | 0.00012 |
| MAY | 75.04 | 75.04 | | 75.04 | 0.00 | -12.76 | -12.76 | 0.00 | | 444.66 | 0.00067 |
| JUN | 75.13 | 75.13 | | 75.13 | 0.00 | -2.92 | -2.92 | 0.00 | | 215.17 | 0.00253 |
| JUL | 75.10 | 75.10 | | 75.10 | 0.00 | 0.37 | 0.37 | 0.00 | | 169.44 | 0.00318 |
| AUG | 75.14 | 75.14 | | 75.14 | 0.00 | -1.65 | -1.65 | 0.00 | | 194.02 | 0.00370 |
| SEP | 75.07 | 75.07 | | 75.07 | 0.00 | -8.08 | -8.08 | 0.00 | | 262.41 | 0.00236 |
| OCT | 74.96 | 74.96 | | 74.96 | 0.00 | -17.87 | -17.87 | 0.00 | | 558.35 | 0.00061 |
| NOV | 74.89 | 74.89 | | 74.89 | 0.00 | -28.67 | -28.67 | 0.00 | | 860.40 | 0.00030 |
| DEC | 74.83 | 74.83 | | 74.83 | 0.00 | -39.29 | -39.29 | 0.00 | | 1217.88 | -0.00003 |
| ANNUAL | 74.98 | 74.98 | 0.00 | 74.98 | 0.00 | -20.93 | -20.93 | 0.00 | 0.00 | 8166.68 | 0.00112 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11: 9:52 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- SS-F ZONE DEMAND SUMMARY IN 1SDXHT FOR 1LDXHT WEATHER FILE- NEWARK, NJ

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| | ----DEMANDS----- | | --BASEBOARDS--- | | --TEMPERATURES-- | | --LOADS NOT MET-- | |
|---|---|---|---|---|---|---|---|---|
| MONTH | HEAT EXTRACTION ENERGY (MBTU) | HEAT ADDITION ENERGY (MBTU) | BASEBOARD ENERGY (MBTU) | MAXIMUM BASEBOARD LOAD (KBTU/HR) | MAXIMUM ZONE TEMP (F) | MINIMUM ZONE TEMP (F) | HOURS UNDER HEATED | HOURS UNDER COOLED |
| JAN | 124.84687 | 0.000 | 0.00000 | 0.000 | 75.7 | 74.3 | 0 | 0 |
| FEB | 118.50689 | 0.000 | 0.00000 | 0.000 | 75.7 | 74.2 | 0 | 0 |
| MAR | 151.90965 | 0.000 | 0.00000 | 0.000 | 75.9 | 74.4 | 0 | 0 |
| APR | 160.57507 | 0.000 | 0.00000 | 0.000 | 76.0 | 74.4 | 0 | 0 |
| MAY | 176.47926 | 0.000 | 0.00000 | 0.000 | 76.0 | 74.5 | 0 | 0 |
| JUN | 190.88374 | 0.000 | 0.00000 | 0.000 | 76.0 | 74.6 | 0 | 0 |
| JUL | 190.27350 | 0.000 | 0.00000 | 0.000 | 76.0 | 74.6 | 0 | 0 |
| AUG | 198.23311 | 0.000 | 0.00000 | 0.000 | 76.2 | 74.5 | 0 | 0 |
| SEP | 176.78696 | 0.000 | 0.00000 | 0.000 | 76.0 | 74.5 | 0 | 0 |
| OCT | 159.41942 | 0.000 | 0.00000 | 0.000 | 75.9 | 74.4 | 0 | 0 |
| NOV | 138.75520 | 0.000 | 0.00000 | 0.000 | 75.9 | 74.4 | 0 | 0 |
| DEC | 130.46097 | 0.000 | 0.00000 | 0.000 | 75.8 | 74.3 | 0 | 0 |

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 1SDX WEATHER FILE- NEWARK, NJ

| | - - - COOLING - - - | | | | | | - - - HEATING - - - | | | | | | - - - ELEC - - - | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 109.87893 | 25 | 14 | 52.F | 41.F | 284.854 | 0.000 | | | | | 0.000 | 36296. | 96.661 |
| FEB | 100.79175 | 11 | 14 | 52.F | 50.F | 287.939 | 0.000 | | | | | 0.000 | 32807. | 96.661 |
| MAR | 120.17087 | 15 | 15 | 65.F | 58.F | 298.072 | 0.000 | | | | | 0.000 | 37732. | 96.661 |
| APR | 118.69505 | 22 | 14 | 68.F | 60.F | 304.955 | 0.000 | | | | | 0.000 | 35611. | 96.661 |
| MAY | 125.52036 | 10 | 14 | 87.F | 68.F | 312.632 | 0.000 | | | | | 0.000 | 36296. | 96.661 |
| JUN | 129.99603 | 29 | 14 | 87.F | 69.F | 313.938 | 0.000 | | | | | 0.000 | 36329. | 96.661 |
| JUL | 128.70070 | 12 | 14 | 88.F | 72.F | 312.708 | 0.000 | | | | | 0.000 | 35578. | 96.661 |
| [illegible] | [illegible]34.39304 | 9 | 14 | 88.F | 71.F | 313.318 | 0.000 | | | | | 0.000 | 37732. | 96.661 |
| SEP | 123.55710 | 15 | 14 | 80.F | 69.F | 310.071 | 0.000 | | | | | 0.000 | 35611. | 96.661 |
| OCT | 118.33138 | 21 | 14 | 68.F | 60.F | 303.654 | 0.000 | | | | | 0.000 | 35578. | 96.661 |
| NOV | 111.27756 | 2 | 14 | 77.F | 70.F | 306.192 | 0.000 | | | | | 0.000 | 34893. | 96.661 |
| DEC | 111.83203 | 2 | 14 | 64.F | 53.F | 293.754 | 0.000 | | | | | 0.000 | 36296. | 96.661 |
| TOTAL | 1433.146 | | | | | | 0.000 | | | | | | 430762. | |
| MAX | | | | | | 313.938 | | | | | | 0.000 | | 96.661 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11: 9:52 SDL RUN 1

READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH

REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 1SDX WEATHER FILE- NEWARK, NJ

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| | - -Z O N E C O O L I N G- - | | - -Z O N E H E A T I N G- | | - -B A S E B O A R D S- - | | - - - -P R E - H E A T - - - | |
|---|---|---|---|---|---|---|---|---|
| MONTH | ZONE COIL COOLING ENERGY (MBTU) | MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR) | ZONE COIL HEATING ENERGY (MBTU) | MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR) | BASEBOARD HEATING ENERGY (MBTU) | MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR) | PRE-HEAT COIL ENERGY (MBTU) | MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR) |
| JAN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| FEB | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAR | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| APR | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAY | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| JUN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| AUG | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| SEP | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| OCT | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| NOV | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| DEC | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| | ---------- | ---------- | ---------- | ---------- | ---------- | ---------- | ---------- | ---------- |
| TOTAL | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| MAX | | 0.000 | | 0.000 | | 0.000 | | 0.000 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11: 9:52 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- SS-K SPACE TEMPERATURE SUMMARY 1SDX WEATHER FILE- NEWARK, NJ

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| | AVERAGE SPACE TEMP | | | | | AVERAGE TEMPERATURE DIFFERENCE | | | SUMMED TEMP DIFFERENCE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | BETWEEN OUTDOOR& ROOM AIR | BETWEEN OUTDOOR& ROOM AIR | BETWEEN OUTDOOR& ROOM AIR | BETWEEN OUTDOOR& ROOM AIR | BETWEEN OUTDOOR& ROOM AIR | HUMIDITY RATIO DIFFERENCE BETWEEN OUTDOOR AND ROOM AIR |
| MONTH | ALL HOURS (F) | COOLING HOURS (F) | HEATING HOURS (F) | FAN ON HOURS (F) | FAN OFF HOURS (F) | ALL HOURS (F) | FAN ON HOURS (F) | FAN OFF HOURS (F) | HEATING HOURS (F) | ALL HOURS (F) | (FRAC.OR MULT. ) |
| JAN | 74.99 | 74.99 | | 74.99 | 0.00 | -43.63 | -43.63 | 0.00 | | 1352.55 | -0.00001 |
| FEB | 75.00 | 75.00 | | 75.00 | 0.00 | -41.78 | -41.78 | 0.00 | | 1169.97 | -0.00003 |
| MAR | 75.08 | 75.08 | | 75.08 | 0.00 | -34.58 | -34.58 | 0.00 | | 1071.96 | -0.00003 |
| APR | 75.10 | 75.10 | | 75.10 | 0.00 | -22.20 | -22.20 | 0.00 | | 668.04 | 0.00011 |
| MAY | 75.12 | 75.12 | | 75.12 | 0.00 | -12.84 | -12.84 | 0.00 | | 446.93 | 0.00066 |
| JUN | 75.19 | 75.19 | | 75.19 | 0.00 | -2.98 | -2.98 | 0.00 | | 216.33 | 0.00251 |
| JUL | 75.14 | 75.14 | | 75.14 | 0.00 | 0.33 | 0.33 | 0.00 | | 170.21 | 0.00317 |
| AUG | 75.19 | 75.19 | | 75.19 | 0.00 | -1.70 | -1.70 | 0.00 | | 194.95 | 0.00368 |
| SEP | 75.13 | 75.13 | | 75.13 | 0.00 | -8.14 | -8.14 | 0.00 | | 264.22 | 0.00235 |
| OCT | 75.06 | 75.06 | | 75.06 | 0.00 | -17.97 | -17.97 | 0.00 | | 561.32 | 0.00060 |
| NOV | 75.03 | 75.03 | | 75.03 | 0.00 | -28.81 | -28.81 | 0.00 | | 864.56 | 0.00029 |
| DEC | 75.01 | 75.01 | | 75.01 | 0.00 | -39.46 | -39.46 | 0.00 | | 1223.30 | -0.00003 |
| ANNUAL | 75.09 | 75.09 | 0.00 | 75.09 | 0.00 | -21.04 | -21.04 | 0.00 | 0.00 | 8204.31 | 0.00111 |

| | ----DEMANDS----- | | --BASEBOARDS--- | | --TEMPERATURES-- | | --LOADS NOT MET-- | |
|---|---|---|---|---|---|---|---|---|
| MONTH | HEAT EXTRACTION ENERGY (MBTU) | HEAT ADDITION ENERGY (MBTU) | BASEBOARD ENERGY (MBTU) | MAXIMUM BASEBOARD LOAD (KBTU/HR) | MAXIMUM ZONE TEMP (F) | MINIMUM ZONE TEMP (F) | HOURS UNDER HEATED | HOURS UNDER COOLED |
| JAN | 83.94625 | 0.000 | 0.00000 | 0.000 | 75.9 | 74.5 | 0 | 0 |
| FEB | 77.37153 | 0.000 | 0.00000 | 0.000 | 75.9 | 74.5 | 0 | 0 |
| MAR | 94.22594 | 0.000 | 0.00000 | 0.000 | 76.0 | 74.5 | 0 | 0 |
| APR | 93.45490 | 0.000 | 0.00000 | 0.000 | 76.0 | 74.5 | 0 | 0 |
| MAY | 99.00498 | 0.000 | 0.00000 | 0.000 | 76.1 | 74.6 | 0 | 0 |
| JUN | 103.68858 | 0.000 | 0.00000 | 0.000 | 76.2 | 74.6 | 0 | 0 |
| J[illegible] | 101.63277 | 0.000 | 0.00000 | 0.000 | 76.2 | 74.6 | 0 | 0 |
| AUG | 107.10589 | 0.000 | 0.00000 | 0.000 | 76.2 | 74.6 | 0 | 0 |
| SEP | 97.66648 | 0.000 | 0.00000 | 0.000 | 76.1 | 74.6 | 0 | 0 |
| OCT | 91.98180 | 0.000 | 0.00000 | 0.000 | 76.0 | 74.5 | 0 | 0 |
| NOV | 85.99596 | 0.000 | 0.00000 | 0.000 | 76.0 | 74.5 | 0 | 0 |
| DEC | 85.90159 | 0.000 | 0.00000 | 0.000 | 75.9 | 74.5 | 0 | 0 |

ENTECH ENGINEERING    EZDOE - ELITE SOFTWARE DEVELOPMENT INC    DOE-2.1D    7/ 2/1996    11: 9:52    SDL RUN 1

READING, PA 19603    4130.05 FT. MONMOUTH - MYER CENTER, NJ    FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 2SDX    WEATHER FILE- NEWARK, NJ

| | - - - - - - - - C O O L I N G - - - - - - - - | | | | | | - - - - - - - - H E A T I N G - - - - - - - - | | | | | | - - - E L E C - - - | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 274.32330 | 20 | 14 | 35.F | 35.F | 648.640 | 0.000 | | | | | 0.000 | 79332. | 212.306 |
| FEB | 248.51154 | 9 | 14 | 38.F | 33.F | 653.556 | 0.000 | | | | | 0.000 | 71706. | 212.306 |
| MAR | 286.07492 | 15 | 15 | 65.F | 58.F | 656.496 | 0.000 | | | | | 0.000 | 82501. | 212.306 |
| APR | 270.78506 | 29 | 14 | 64.F | 60.F | 658.082 | 0.000 | | | | | 0.000 | 77847. | 212.306 |
| MAY | 275.68390 | 18 | 14 | 67.F | 59.F | 661.414 | 0.000 | | | | | 0.000 | 79332. | 212.306 |
| JUN | 278.04584 | 29 | 14 | 87.F | 69.F | 660.947 | 0.000 | | | | | 0.000 | 79431. | 212.306 |
| JUL | 272.46158 | 26 | 14 | 80.F | 64.F | 662.274 | 0.000 | | | | | 0.000 | 77748. | 212.306 |
| [illegible] | 288.48929 | 2 | 14 | 78.F | 63.F | 660.852 | 0.000 | | | | | 0.000 | 82501. | 212.306 |
| SEP | 271.60422 | 14 | 14 | 73.F | 62.F | 663.940 | 0.000 | | | | | 0.000 | 77847. | 212.306 |
| OCT | 270.24704 | 21 | 14 | 68.F | 60.F | 662.417 | 0.000 | | | | | 0.000 | 77748. | 212.306 |
| NOV | 264.62100 | 1 | 14 | 71.F | 68.F | 660.767 | 0.000 | | | | | 0.000 | 76262. | 212.306 |
| DEC | 275.57596 | 1 | 14 | 49.F | 43.F | 650.005 | 0.000 | | | | | 0.000 | 79332. | 212.306 |
| TOTAL | 3276.426 | | | | | | 0.000 | | | | | | 941521. | |
| MAX | | | | | | 663.940 | | | | | | 0.000 | | 212.306 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11: 9:52 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 2SDX WEATHER FILE- NEWARK, NJ

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| | - - Z O N E C O O L I N G - - | | - - Z O N E H E A T I N G - | | - - B A S E B O A R D S - - | | - - - - P R E - H E A T - - - | |
|---|---|---|---|---|---|---|---|---|
| MONTH | ZONE COIL COOLING ENERGY (MBTU) | MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR) | ZONE COIL HEATING ENERGY (MBTU) | MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR) | BASEBOARD HEATING ENERGY (MBTU) | MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR) | PRE-HEAT COIL ENERGY (MBTU) | MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR) |
| JAN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| FEB | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAR | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| APR | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAY | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| JUN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| [illegible] | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| AUG | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| SEP | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| OCT | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| NOV | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| DEC | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| | ---------- | ---------- | ---------- | ---------- | ---------- | ---------- | ---------- | ---------- |
| TOTAL | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| MAX | | 0.000 | | 0.000 | | 0.000 | | 0.000 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11: 9:52 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- SS-K SPACE TEMPERATURE SUMMARY 2SDX WEATHER FILE- NEWARK, NJ

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| MONTH | AVERAGE SPACE TEMP ALL HOURS (F) | COOLING HOURS (F) | HEATING HOURS (F) | FAN ON HOURS (F) | FAN OFF HOURS (F) | AVERAGE TEMPERATURE DIFFERENCE BETWEEN OUTDOOR& ROOM AIR ALL HOURS (F) | BETWEEN OUTDOOR& ROOM AIR FAN ON HOURS (F) | BETWEEN OUTDOOR& ROOM AIR FAN OFF HOURS (F) | SUMMED TEMP DIFFERENCE BETWEEN OUTDOOR& ROOM AIR HEATING HOURS (F) | BETWEEN OUTDOOR& ROOM AIR ALL HOURS (F) | HUMIDITY RATIO DIFFERENCE BETWEEN OUTDOOR AND ROOM AIR (FRAC.OR MULT. ) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | 75.17 | 75.17 | | 75.17 | 0.00 | -43.81 | -43.81 | 0.00 | | 1358.22 | -0.00001 |
| FEB | 75.18 | 75.18 | | 75.18 | 0.00 | -41.96 | -41.96 | 0.00 | | 1174.75 | -0.00003 |
| MAR | 75.23 | 75.23 | | 75.23 | 0.00 | -34.73 | -34.73 | 0.00 | | 1076.49 | -0.00003 |
| APR | 75.20 | 75.20 | | 75.20 | 0.00 | -22.30 | -22.30 | 0.00 | | 670.89 | 0.00011 |
| MAY | 75.17 | 75.17 | | 75.17 | 0.00 | -12.89 | -12.89 | 0.00 | | 448.60 | 0.00066 |
| JUN | 75.22 | 75.22 | | 75.22 | 0.00 | -3.01 | -3.01 | 0.00 | | 217.23 | 0.00251 |
| JUL | 75.15 | 75.15 | | 75.15 | 0.00 | 0.32 | 0.32 | 0.00 | | 170.89 | 0.00318 |
| AUG | 75.22 | 75.22 | | 75.22 | 0.00 | -1.73 | -1.73 | 0.00 | | 195.61 | 0.00369 |
| SEP | 75.19 | 75.19 | | 75.19 | 0.00 | -8.20 | -8.20 | 0.00 | | 265.65 | 0.00235 |
| OCT | 75.14 | 75.14 | | 75.14 | 0.00 | -18.06 | -18.06 | 0.00 | | 564.10 | 0.00060 |
| NOV | 75.17 | 75.17 | | 75.17 | 0.00 | -28.94 | -28.94 | 0.00 | | 868.58 | 0.00029 |
| DEC | 75.18 | 75.18 | | 75.18 | 0.00 | -39.63 | -39.63 | 0.00 | | 1228.59 | -0.00004 |
| ANNUAL | 75.19 | 75.19 | 0.00 | 75.19 | 0.00 | -21.14 | -21.14 | 0.00 | 0.00 | 8239.62 | 0.00111 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11: 9:52 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- SS-F ZONE DEMAND SUMMARY IN 2SDX FOR 2LDX WEATHER FILE- NEWARK, NJ

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| | ----DEMANDS----- | | --BASEBOARDS--- | | --TEMPERATURES-- | | --LOADS NOT MET-- | |
|---|---|---|---|---|---|---|---|---|
| MONTH | HEAT EXTRACTION ENERGY (MBTU) | HEAT ADDITION ENERGY (MBTU) | BASEBOARD ENERGY (MBTU) | MAXIMUM BASEBOARD LOAD (KBTU/HR) | MAXIMUM ZONE TEMP (F) | MINIMUM ZONE TEMP (F) | HOURS UNDER HEATED | HOURS UNDER COOLED |
| JAN | 219.48587 | 0.000 | 0.00000 | 0.000 | 76.3 | 74.7 | 0 | 0 |
| FEB | 198.98672 | 0.000 | 0.00000 | 0.000 | 76.4 | 74.7 | 0 | 0 |
| MAR | 231.21049 | 0.000 | 0.00000 | 0.000 | 76.5 | 74.7 | 0 | 0 |
| APR | 217.41350 | 0.000 | 0.00000 | 0.000 | 76.4 | 74.7 | 0 | 0 |
| MAY | 219.58954 | 0.000 | 0.00000 | 0.000 | 76.3 | 74.7 | 0 | 0 |
| JUN | 222.31543 | 0.000 | 0.00000 | 0.000 | 76.3 | 74.7 | 0 | 0 |
| JUL | 215.12756 | 0.000 | 0.00000 | 0.000 | 76.3 | 74.7 | 0 | 0 |
| AUG | 230.66203 | 0.000 | 0.00000 | 0.000 | 76.3 | 74.7 | 0 | 0 |
| SEP | 216.78177 | 0.000 | 0.00000 | 0.000 | 76.4 | 74.7 | 0 | 0 |
| OCT | 214.50052 | 0.000 | 0.00000 | 0.000 | 76.3 | 74.7 | 0 | 0 |
| NOV | 211.17157 | 0.000 | 0.00000 | 0.000 | 76.3 | 74.7 | 0 | 0 |
| DEC | 220.74312 | 0.000 | 0.00000 | 0.000 | 76.3 | 74.7 | 0 | 0 |

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 3SDX WEATHER FILE- NEWARK, NJ

| | - - - C O O L I N G - - - | | | | | | - - - H E A T I N G - - - | | | | | | - - - E L E C - - - | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 187.14217 | 20 | 14 | 35.F | 35.F | 442.508 | 0.000 | | | | | 0.000 | 54120. | 144.834 |
| FEB | 169.53336 | 9 | 14 | 38.F | 33.F | 445.851 | 0.000 | | | | | 0.000 | 48917. | 144.834 |
| MAR | 195.15898 | 15 | 15 | 65.F | 58.F | 447.863 | 0.000 | | | | | 0.000 | 56282. | 144.834 |
| APR | 184.72827 | 29 | 14 | 64.F | 60.F | 448.949 | 0.000 | | | | | 0.000 | 53106. | 144.834 |
| MAY | 188.07011 | 18 | 14 | 67.F | 59.F | 451.222 | 0.000 | | | | | 0.000 | 54120. | 144.834 |
| JUN | 189.68146 | 29 | 14 | 87.F | 69.F | 450.903 | 0.000 | | | | | 0.000 | 54187. | 144.834 |
| JUL | 185.87202 | 26 | 14 | 80.F | 64.F | 451.809 | 0.000 | | | | | 0.000 | 53039. | 144.834 |
| [illegible] | 196.80603 | 2 | 14 | 78.F | 63.F | 450.839 | 0.000 | | | | | 0.000 | 56282. | 144.834 |
| SEP | 185.28709 | 14 | 14 | 73.F | 62.F | 452.945 | 0.000 | | | | | 0.000 | 53106. | 144.834 |
| OCT | 184.36110 | 21 | 14 | 68.F | 60.F | 451.906 | 0.000 | | | | | 0.000 | 53039. | 144.834 |
| NOV | 180.52327 | 1 | 14 | 71.F | 68.F | 450.781 | 0.000 | | | | | 0.000 | 52025. | 144.834 |
| DEC | 187.99649 | 1 | 14 | 49.F | 43.F | 443.439 | 0.000 | | | | | 0.000 | 54120. | 144.834 |
| | --------- | | | | | ---------- | --------- | | | | | ---------- | -------- | ------- |
| TOTAL | 2235.162 | | | | | | 0.000 | | | | | | 642340. | |
| MAX | | | | | | 452.945 | | | | | | 0.000 | | 144.834 |

REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 3SDX WEATHER FILE- NEWARK, NJ

| | --ZONE COOLING-- | | --ZONE HEATING- | | --BASEBOARDS-- | | ----PRE-HEAT--- | |
|---|---|---|---|---|---|---|---|---|
| MONTH | ZONE COIL COOLING ENERGY (MBTU) | MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR) | ZONE COIL HEATING ENERGY (MBTU) | MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR) | BASEBOARD HEATING ENERGY (MBTU) | MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR) | PRE-HEAT COIL ENERGY (MBTU) | MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR) |
| JAN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| FEB | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAR | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| APR | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAY | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| JUN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| JUL | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| AUG | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| SEP | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| OCT | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| NOV | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| DEC | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| TOTAL | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| MAX | | 0.000 | | 0.000 | | 0.000 | | 0.000 |

REPORT- SS-K SPACE TEMPERATURE SUMMARY 3SDX WEATHER FILE- NEWARK, NJ

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| MONTH | AVERAGE SPACE TEMP ALL HOURS (F) | COOLING HOURS (F) | HEATING HOURS (F) | FAN ON HOURS (F) | FAN OFF HOURS (F) | AVERAGE TEMPERATURE DIFFERENCE BETWEEN OUTDOOR& ROOM AIR ALL HOURS (F) | BETWEEN OUTDOOR& ROOM AIR FAN ON HOURS (F) | BETWEEN OUTDOOR& ROOM AIR FAN OFF HOURS (F) | SUMMED TEMP DIFFERENCE BETWEEN OUTDOOR& ROOM AIR HEATING HOURS (F) | BETWEEN OUTDOOR& ROOM AIR ALL HOURS (F) | HUMIDITY RATIO DIFFERENCE BETWEEN OUTDOOR AND ROOM AIR (FRAC.OR MULT. ) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | 75.17 | 75.17 | | 75.17 | 0.00 | -43.81 | -43.81 | 0.00 | | 1358.22 | -0.00001 |
| FEB | 75.18 | 75.18 | | 75.18 | 0.00 | -41.96 | -41.96 | 0.00 | | 1174.75 | -0.00003 |
| MAR | 75.23 | 75.23 | | 75.23 | 0.00 | -34.73 | -34.73 | 0.00 | | 1076.49 | -0.00003 |
| APR | 75.20 | 75.20 | | 75.20 | 0.00 | -22.30 | -22.30 | 0.00 | | 670.88 | 0.00011 |
| MAY | 75.17 | 75.17 | | 75.17 | 0.00 | -12.89 | -12.89 | 0.00 | | 448.60 | 0.00066 |
| JUN | 75.22 | 75.22 | | 75.22 | 0.00 | -3.01 | -3.01 | 0.00 | | 217.23 | 0.00251 |
| JUL | 75.15 | 75.15 | | 75.15 | 0.00 | 0.32 | 0.32 | 0.00 | | 170.89 | 0.00317 |
| AUG | 75.22 | 75.22 | | 75.22 | 0.00 | -1.73 | -1.73 | 0.00 | | 195.61 | 0.00369 |
| SEP | 75.19 | 75.19 | | 75.19 | 0.00 | -8.20 | -8.20 | 0.00 | | 265.64 | 0.00235 |
| OCT | 75.14 | 75.14 | | 75.14 | 0.00 | -18.06 | -18.06 | 0.00 | | 564.09 | 0.00060 |
| NOV | 75.17 | 75.17 | | 75.17 | 0.00 | -28.94 | -28.94 | 0.00 | | 868.57 | 0.00029 |
| DEC | 75.18 | 75.18 | | 75.18 | 0.00 | -39.63 | -39.63 | 0.00 | | 1228.58 | -0.00004 |
| ANNUAL | 75.19 | 75.19 | 0.00 | 75.19 | 0.00 | -21.14 | -21.14 | 0.00 | 0.00 | 8239.58 | 0.00111 |

ENTECH ENGINEERING    EZDOE - ELITE SOFTWARE DEVELOPMENT INC    DOE-2.1D   7/ 2/1996   11: 9:52  SDL RUN 1
READING, PA 19603    4130.05 FT. MONMOUTH - MYER CENTER, NJ  FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- SS-F ZONE DEMAND SUMMARY IN 3SDX    FOR 3LDX    WEATHER FILE- NEWARK, NJ

| | ----DEMANDS----- | | --BASEBOARDS--- | | --TEMPERATURES-- | | --LOADS NOT MET-- | |
|---|---|---|---|---|---|---|---|---|
| MONTH | HEAT EXTRACTION ENERGY (MBTU) | HEAT ADDITION ENERGY (MBTU) | BASEBOARD ENERGY (MBTU) | MAXIMUM BASEBOARD LOAD (KBTU/HR) | MAXIMUM ZONE TEMP (F) | MINIMUM ZONE TEMP (F) | HOURS UNDER HEATED | HOURS UNDER COOLED |
| JAN | 149.73132 | 0.000 | 0.00000 | 0.000 | 76.3 | 74.7 | 0 | 0 |
| FEB | 135.74727 | 0.000 | 0.00000 | 0.000 | 76.4 | 74.7 | 0 | 0 |
| MAR | 157.72980 | 0.000 | 0.00000 | 0.000 | 76.5 | 74.7 | 0 | 0 |
| APR | 148.31773 | 0.000 | 0.00000 | 0.000 | 76.4 | 74.7 | 0 | 0 |
| MAY | 149.80225 | 0.000 | 0.00000 | 0.000 | 76.3 | 74.7 | 0 | 0 |
| JUN | 151.66167 | 0.000 | 0.00000 | 0.000 | 76.3 | 74.7 | 0 | 0 |
| JUL | 146.75827 | 0.000 | 0.00000 | 0.000 | 76.3 | 74.7 | 0 | 0 |
| AUG | 157.35567 | 0.000 | 0.00000 | 0.000 | 76.3 | 74.7 | 0 | 0 |
| SEP | 147.88680 | 0.000 | 0.00000 | 0.000 | 76.4 | 74.7 | 0 | 0 |
| OCT | 146.33066 | 0.000 | 0.00000 | 0.000 | 76.3 | 74.7 | 0 | 0 |
| NOV | 144.05949 | 0.000 | 0.00000 | 0.000 | 76.3 | 74.7 | 0 | 0 |
| DEC | 150.58902 | 0.000 | 0.00000 | 0.000 | 76.3 | 74.7 | 0 | 0 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11: 9:52 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 4SDX WEATHER FILE- NEWARK, NJ

| | - - - COOLING - - - | | | | | | - - - HEATING - - - | | | | | | - - - ELEC - - - | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 263.09409 | 25 | 14 | 52.F | 41.F | 1034.193 | 0.000 | | | | | 0.000 | 153775. | 405.473 |
| FEB | 257.19397 | 14 | 14 | 51.F | 41.F | 1088.319 | 0.000 | | | | | 0.000 | 138988. | 405.473 |
| MAR | 356.41827 | 16 | 14 | 67.F | 50.F | 1242.498 | 0.000 | | | | | 0.000 | 159607. | 405.473 |
| APR | 415.84497 | 15 | 15 | 73.F | 55.F | 1457.977 | 0.000 | | | | | 0.000 | 150790. | 405.473 |
| MAY | 485.99478 | 25 | 12 | 72.F | 54.F | 1491.360 | 0.000 | | | | | 0.000 | 153774. | 405.473 |
| JUN | 555.14801 | 13 | 14 | 96.F | 73.F | 1591.747 | 0.000 | | | | | 0.000 | 153706. | 405.473 |
| JUL | 566.44348 | 25 | 14 | 84.F | 65.F | 1628.274 | 0.000 | | | | | 0.000 | 150858. | 405.473 |
| AUG | 575.93042 | 12 | 13 | 84.F | 70.F | 1604.572 | 0.000 | | | | | 0.000 | 159607. | 405.473 |
| SEP | 497.02283 | 7 | 14 | 82.F | 64.F | 1460.793 | 0.000 | | | | | 0.000 | 150790. | 405.473 |
| OCT | 422.63153 | 14 | 14 | 75.F | 61.F | 1368.694 | 0.000 | | | | | 0.000 | 150858. | 405.473 |
| NOV | 340.81183 | 2 | 14 | 77.F | 70.F | 1298.614 | 0.000 | | | | | 0.000 | 147874. | 405.473 |
| DEC | 290.52545 | 2 | 14 | 64.F | 53.F | 1171.184 | 0.000 | | | | | 0.000 | 153775. | 405.473 |
| | --------- | | | | | ---------- | --------- | | | | | ---------- | -------- | ------- |
| TOTAL | 5027.062 | | | | | | 0.000 | | | | | | 1824458. | |
| MAX | | | | | | 1628.274 | | | | | | 0.000 | | 405.473 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11: 9:52 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 4SDX WEATHER FILE- NEWARK, NJ

| | --ZONE COOLING-- | | --ZONE HEATING- | | --BASEBOARDS-- | | ----PRE-HEAT--- | |
|---|---|---|---|---|---|---|---|---|
| MONTH | ZONE COIL COOLING ENERGY (MBTU) | MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR) | ZONE COIL HEATING ENERGY (MBTU) | MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR) | BASEBOARD HEATING ENERGY (MBTU) | MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR) | PRE-HEAT COIL ENERGY (MBTU) | MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR) |
| JAN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| FEB | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAR | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| APR | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAY | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| JUN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| JUL | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| AUG | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| SEP | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| OCT | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| NOV | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| DEC | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| TOTAL | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| MAX | | 0.000 | | 0.000 | | 0.000 | | 0.000 |

ENTECH ENGINEERING    EZDOE - ELITE SOFTWARE DEVELOPMENT INC    DOE-2.1D    7/ 2/1996    11: 9:52  SDL RUN 1
READING, PA 19603    4130.05 FT. MONMOUTH - MYER CENTER, NJ  FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- SS-K  SPACE TEMPERATURE SUMMARY    4SDX    WEATHER FILE- NEWARK, NJ

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| | AVERAGE SPACE TEMP | | | | | AVERAGE TEMPERATURE DIFFERENCE | | | SUMMED TEMP DIFFERENCE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | ALL HOURS (F) | COOLING HOURS (F) | HEATING HOURS (F) | FAN ON HOURS (F) | FAN OFF HOURS (F) | BETWEEN OUTDOOR& ROOM AIR ALL HOURS (F) | BETWEEN OUTDOOR& ROOM AIR FAN ON HOURS (F) | BETWEEN OUTDOOR& ROOM AIR FAN OFF HOURS (F) | BETWEEN OUTDOOR& ROOM AIR HEATING HOURS (F) | BETWEEN OUTDOOR& ROOM AIR ALL HOURS (F) | HUMIDITY RATIO DIFFERENCE BETWEEN OUTDOOR AND ROOM AIR (FRAC.OR MULT. ) |
| JAN | 74.44 | 74.48 | | 74.44 | 0.00 | -43.08 | -43.08 | 0.00 | | 1335.48 | 0.00000 |
| FEB | 74.41 | 74.54 | | 74.41 | 0.00 | -41.19 | -41.19 | 0.00 | | 1153.42 | -0.00002 |
| MAR | 74.61 | 74.61 | | 74.61 | 0.00 | -34.11 | -34.11 | 0.00 | | 1057.39 | -0.00001 |
| APR | 74.74 | 74.74 | | 74.74 | 0.00 | -21.84 | -21.84 | 0.00 | | 657.38 | 0.00013 |
| MAY | 74.83 | 74.83 | | 74.83 | 0.00 | -12.55 | -12.55 | 0.00 | | 439.51 | 0.00069 |
| JUN | 74.98 | 74.98 | | 74.98 | 0.00 | -2.77 | -2.77 | 0.00 | | 213.07 | 0.00257 |
| JUL | 74.96 | 74.96 | | 74.96 | 0.00 | 0.51 | 0.51 | 0.00 | | 168.80 | 0.00321 |
| AUG | 74.98 | 74.98 | | 74.98 | 0.00 | -1.49 | -1.49 | 0.00 | | 192.79 | 0.00374 |
| SEP | 74.88 | 74.88 | | 74.88 | 0.00 | -7.89 | -7.89 | 0.00 | | 257.71 | 0.00239 |
| OCT | 74.72 | 74.72 | | 74.72 | 0.00 | -17.64 | -17.64 | 0.00 | | 551.03 | 0.00063 |
| NOV | 74.61 | 74.61 | | 74.61 | 0.00 | -28.38 | -28.38 | 0.00 | | 851.84 | 0.00031 |
| DEC | 74.50 | 74.50 | | 74.50 | 0.00 | -38.95 | -38.95 | 0.00 | | 1207.55 | -0.00002 |
| ANNUAL | 74.72 | 74.74 | 0.00 | 74.72 | 0.00 | -20.67 | -20.67 | 0.00 | 0.00 | 8085.99 | 0.00114 |

ENTECH ENGINEERING    EZDOE - ELITE SOFTWARE DEVELOPMENT INC    DOE-2.1D    7/ 2/1996    11: 9:52    SDL RUN 1
READING, PA 19603    4130.05 FT. MONMOUTH - MYER CENTER, NJ    FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- SS-F ZONE DEMAND SUMMARY IN 4SDX    FOR 4LDX    WEATHER FILE- NEWARK, NJ

| | ----DEMANDS----- | | --BASEBOARDS--- | | --TEMPERATURES-- | | --LOADS NOT MET-- | |
|---|---|---|---|---|---|---|---|---|
| MONTH | HEAT EXTRACTION ENERGY (MBTU) | HEAT ADDITION ENERGY (MBTU) | BASEBOARD ENERGY (MBTU) | MAXIMUM BASEBOARD LOAD (KBTU/HR) | MAXIMUM ZONE TEMP (F) | MINIMUM ZONE TEMP (F) | HOURS UNDER HEATED | HOURS UNDER COOLED |
| JAN | 158.36589 | -31.797 | 0.00000 | 0.000 | 75.3 | 73.3 | 0 | 0 |
| FEB | 158.89586 | -25.314 | 0.00000 | 0.000 | 75.4 | 72.1 | 0 | 0 |
| MAR | 227.06105 | -7.621 | 0.00000 | 0.000 | 75.6 | 74.1 | 0 | 0 |
| APR | 284.07574 | -1.363 | 0.00000 | 0.000 | 75.9 | 74.1 | 0 | 0 |
| MAY | 346.84781 | -0.013 | 0.00000 | 0.000 | 75.9 | 74.2 | 0 | 0 |
| JUN | 418.25571 | 0.000 | 0.00000 | 0.000 | 76.0 | 74.4 | 0 | 0 |
| JUL | 425.31116 | 0.000 | 0.00000 | 0.000 | 76.0 | 74.4 | 0 | 0 |
| AUG | 434.02057 | 0.000 | 0.00000 | 0.000 | 76.0 | 74.3 | 0 | 0 |
| SEP | 361.56223 | 0.000 | 0.00000 | 0.000 | 75.9 | 74.3 | 0 | 0 |
| OCT | 284.46936 | -0.378 | 0.00000 | 0.000 | 75.7 | 74.2 | 0 | 0 |
| NOV | 212.56813 | -4.977 | 0.00000 | 0.000 | 75.6 | 74.1 | 0 | 0 |
| DEC | 174.80289 | -21.092 | 0.00000 | 0.000 | 75.5 | 73.7 | 0 | 0 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11: 9:52 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 1SHWONLY WEATHER FILE- NEWARK, NJ

| | COOLING | | | | | | HEATING | | | | | | ELEC | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 0.00000 | | | | | 0.000 | -174.148 | 6 | 13 | 22.F | 16.F | -514.496 | 15922. | 59.104 |
| FEB | 0.00000 | | | | | 0.000 | -150.199 | 21 | 11 | 27.F | 22.F | -514.496 | 14397. | 59.104 |
| MAR | 0.00000 | | | | | 0.000 | -124.927 | 5 | 1 | 29.F | 24.F | -489.862 | 16895. | 59.104 |
| APR | 0.00000 | | | | | 0.000 | -41.582 | 9 | 4 | 32.F | 27.F | -419.899 | 15738. | 59.104 |
| MAY | 0.00000 | | | | | 0.000 | -4.892 | 4 | 2 | 40.F | 35.F | -204.153 | 15922. | 59.104 |
| JUN | 0.00000 | | | | | 0.000 | 0.000 | | | | | 0.000 | 16224. | 59.104 |
| JUL | 0.00000 | | | | | 0.000 | 0.000 | | | | | 0.000 | 15435. | 59.104 |
| AUG | 0.00000 | | | | | 0.000 | 0.000 | | | | | 0.000 | 16895. | 59.104 |
| SEP | 0.00000 | | | | | 0.000 | 0.000 | | | | | 0.000 | 15738. | 59.104 |
| OCT | 0.00000 | | | | | 0.000 | -10.179 | 25 | 6 | 41.F | 36.F | -293.686 | 15436. | 59.104 |
| NOV | 0.00000 | | | | | 0.000 | -74.748 | 25 | 6 | 38.F | 37.F | -440.567 | 15252. | 59.104 |
| DEC | 0.00000 | | | | | 0.000 | -164.725 | 24 | 13 | 33.F | 29.F | -502.472 | 15922. | 59.104 |
| TOTAL | 0.000 | | | | | | -745.399 | | | | | | 189781. | |
| MAX | | | | | | 0.000 | | | | | | -514.496 | | 59.104 |

REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 1SHWONLY WEATHER FILE- NEWARK, NJ

| | --ZONE COOLING-- | | --ZONE HEATING- | | --BASEBOARDS-- | | ----PRE-HEAT--- | |
|---|---|---|---|---|---|---|---|---|
| MONTH | ZONE COIL COOLING ENERGY (MBTU) | MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR) | ZONE COIL HEATING ENERGY (MBTU) | MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR) | BASEBOARD HEATING ENERGY (MBTU) | MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR) | PRE-HEAT COIL ENERGY (MBTU) | MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR) |
| JAN | 0.00000 | 0.000 | 0.00000 | 0.000 | -174.14850 | -514.496 | 0.00000 | 0.000 |
| FEB | 0.00000 | 0.000 | 0.00000 | 0.000 | -150.19852 | -514.496 | 0.00000 | 0.000 |
| MAR | 0.00000 | 0.000 | 0.00000 | 0.000 | -124.92693 | -489.862 | 0.00000 | 0.000 |
| APR | 0.00000 | 0.000 | 0.00000 | 0.000 | -41.58194 | -419.899 | 0.00000 | 0.000 |
| MAY | 0.00000 | 0.000 | 0.00000 | 0.000 | -4.89179 | -204.153 | 0.00000 | 0.000 |
| JUN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| JUL | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| AUG | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| SEP | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| OCT | 0.00000 | 0.000 | 0.00000 | 0.000 | -10.17935 | -293.686 | 0.00000 | 0.000 |
| NOV | 0.00000 | 0.000 | 0.00000 | 0.000 | -74.74754 | -440.567 | 0.00000 | 0.000 |
| DEC | 0.00000 | 0.000 | 0.00000 | 0.000 | -164.72507 | -502.472 | 0.00000 | 0.000 |
| TOTAL | 0.000 | | 0.000 | | -745.399 | | 0.000 | |
| MAX | | 0.000 | | 0.000 | | -514.496 | | 0.000 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11: 9:52 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- SS-K SPACE TEMPERATURE SUMMARY 1SHWONLY WEATHER FILE- NEWARK, NJ

| | A V E R A G E | S P A C E | T E M P | | | AVERAGE TEMPERATURE DIFFERENCE | | | SUMMED TEMP DIFFERENCE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | BETWEEN OUTDOOR& ROOM AIR | BETWEEN OUTDOOR& ROOM AIR | BETWEEN OUTDOOR& ROOM AIR | BETWEEN OUTDOOR& ROOM AIR | BETWEEN OUTDOOR& ROOM AIR | HUMIDITY RATIO DIFFERENCE BETWEEN |
| MONTH | ALL HOURS (F) | COOLING HOURS (F) | HEATING HOURS (F) | FAN ON HOURS (F) | FAN OFF HOURS (F) | ALL HOURS (F) | FAN ON HOURS (F) | FAN OFF HOURS (F) | HEATING HOURS (F) | ALL HOURS (F) | OUTDOOR AND ROOM AIR (FRAC.OR MULT. ) |
| JAN | 68.65 | | 68.55 | 68.65 | 0.00 | -37.29 | -37.29 | 0.00 | 1108.80 | 1156.08 | -0.00024 |
| FEB | 69.01 | | 68.90 | 69.01 | 0.00 | -35.79 | -35.79 | 0.00 | 948.70 | 1002.03 | -0.00024 |
| MAR | 69.56 | | 69.24 | 69.56 | 0.00 | -29.06 | -29.06 | 0.00 | 813.52 | 900.81 | -0.00023 |
| APR | 72.34 | | 69.47 | 72.34 | 0.00 | -19.44 | -19.44 | 0.00 | 312.97 | 583.31 | -0.00024 |
| MAY | 75.61 | | 69.62 | 76.66 | 74.62 | -13.33 | -14.00 | -12.69 | 47.79 | 428.51 | -0.00190 |
| JUN | 87.78 | | | 0.00 | 87.78 | -15.57 | 0.00 | -15.57 | | | -0.00076 |
| JUL | 91.21 | | | 0.00 | 91.21 | -15.74 | 0.00 | -15.74 | | | 0.00019 |
| AUG | 91.10 | | | 0.00 | 91.10 | -17.61 | 0.00 | -17.61 | | | 0.00073 |
| SEP | 82.46 | | | 0.00 | 82.46 | -15.47 | 0.00 | -15.47 | | | -0.00135 |
| OCT | 71.92 | | 69.66 | 72.43 | 71.37 | -14.83 | -14.96 | -14.69 | 89.43 | 463.25 | -0.00240 |
| NOV | 70.87 | | 69.43 | 70.87 | 0.00 | -24.64 | -24.64 | 0.00 | 563.31 | 739.34 | -0.00028 |
| DEC | 69.20 | | 69.09 | 69.20 | 0.00 | -33.66 | -33.66 | 0.00 | 1007.61 | 1043.34 | -0.00021 |
| ANNUAL | 76.69 | 0.00 | 69.09 | 70.60 | 85.12 | -22.64 | -27.71 | -15.61 | 4892.13 | 8282.66 | -0.00058 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11: 9:52 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- SS-F ZONE DEMAND SUMMARY IN 1SHWONLY FOR 1LHWONLY WEATHER FILE- NEWARK, NJ

| | ----DEMANDS----- | | --BASEBOARDS--- | | --TEMPERATURES-- | | --LOADS NOT MET-- | |
|---|---|---|---|---|---|---|---|---|
| MONTH | HEAT EXTRACTION ENERGY (MBTU) | HEAT ADDITION ENERGY (MBTU) | BASEBOARD ENERGY (MBTU) | MAXIMUM BASEBOARD LOAD (KBTU/HR) | MAXIMUM ZONE TEMP (F) | MINIMUM ZONE TEMP (F) | HOURS UNDER HEATED | HOURS UNDER COOLED |
| JAN | 0.02220 | -0.227 | -174.14850 | -514.496 | 72.4 | 57.2 | 61 | 0 |
| FEB | 0.02024 | -0.227 | -150.19852 | -514.496 | 71.9 | 61.7 | 30 | 0 |
| MAR | 0.02285 | -0.114 | -124.92693 | -489.862 | 75.3 | 68.1 | 0 | 0 |
| APR | 0.02337 | -0.342 | -41.58194 | -419.899 | 85.3 | 68.4 | 0 | 0 |
| MAY | 0.01259 | -0.083 | -4.89179 | -204.153 | 91.1* | 69.2 | 0 | 0 |
| JUN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.0 | 200.0 | 0 | 0 |
| JUL | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.0 | 200.0 | 0 | 0 |
| AUG | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.0 | 200.0 | 0 | 0 |
| SEP | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.0 | 200.0 | 0 | 0 |
| OCT | 0.01288 | -0.113 | -10.17935 | -293.686 | 81.7 | 68.9 | 0 | 0 |
| NOV | 0.02295 | -0.053 | -74.74754 | -440.567 | 83.8 | 68.3 | 0 | 0 |
| DEC | 0.02258 | -0.080 | -164.72507 | -502.472 | 73.9 | 68.0 | 0 | 0 |

ENTECH ENGINEERING    EZDOE - ELITE SOFTWARE DEVELOPMENT INC    DOE-2.1D  7/ 2/1996  11: 9:52  SDL RUN 1
READING, PA 19603    4130.05 FT. MONMOUTH - MYER CENTER, NJ  FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR    04SHWELEV    WEATHER FILE- NEWARK, NJ

| | - - - - - COOLING - - - - - | | | | | | - - - - - HEATING - - - - - | | | | | | - - - ELEC - - - | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 0.00000 | | | | | 0.000 | -20.829 | 5 | 20 | 15.F | 12.F | -70.170 | 794. | 2.940 |
| FEB | 0.00000 | | | | | 0.000 | -17.583 | 20 | 3 | 10.F | 7.F | -64.515 | 718. | 2.940 |
| MAR | 0.00000 | | | | | 0.000 | -15.075 | 5 | 1 | 29.F | 24.F | -41.844 | 842. | 2.940 |
| APR | 0.00000 | | | | | 0.000 | -6.853 | 9 | 4 | 32.F | 27.F | -37.553 | 785. | 2.940 |
| MAY | 0.00000 | | | | | 0.000 | -1.336 | 4 | 2 | 40.F | 35.F | -23.584 | 792. | 2.940 |
| JUN | 0.00000 | | | | | 0.000 | 0.000 | | | | | 0.000 | 806. | 2.936 |
| JUL | 0.00000 | | | | | 0.000 | 0.000 | | | | | 0.000 | 767. | 2.936 |
| AUG | 0.00000 | | | | | 0.000 | 0.000 | | | | | 0.000 | 839. | 2.936 |
| SEP | 0.00000 | | | | | 0.000 | 0.000 | | | | | 0.000 | 782. | 2.936 |
| OCT | 0.00000 | | | | | 0.000 | -2.401 | 25 | 6 | 41.F | 36.F | -28.578 | 768. | 2.940 |
| NOV | 0.00000 | | | | | 0.000 | -10.923 | 25 | 6 | 38.F | 37.F | -35.851 | 760. | 2.940 |
| DEC | 0.00000 | | | | | 0.000 | -18.807 | 26 | 7 | 25.F | 24.F | -42.089 | 794. | 2.940 |
| TOTAL | 0.000 | | | | | | -93.808 | | | | | | 9447. | |
| MAX | | | | | | 0.000 | | | | | | -70.170 | | 2.940 |

REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 04SHWELEV WEATHER FILE- NEWARK, NJ

| | --ZONE COOLING-- | | --ZONE HEATING- | | --BASEBOARDS-- | | ----PRE-HEAT--- | |
|---|---|---|---|---|---|---|---|---|
| MONTH | ZONE COIL COOLING ENERGY (MBTU) | MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR) | ZONE COIL HEATING ENERGY (MBTU) | MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR) | BASEBOARD HEATING ENERGY (MBTU) | MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR) | PRE-HEAT COIL ENERGY (MBTU) | MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR) |
| JAN | 0.00000 | 0.000 | 0.00000 | 0.000 | -20.82914 | -70.170 | 0.00000 | 0.000 |
| FEB | 0.00000 | 0.000 | 0.00000 | 0.000 | -17.58308 | -64.515 | 0.00000 | 0.000 |
| MAR | 0.00000 | 0.000 | 0.00000 | 0.000 | -15.07471 | -41.844 | 0.00000 | 0.000 |
| APR | 0.00000 | 0.000 | 0.00000 | 0.000 | -6.85345 | -37.553 | 0.00000 | 0.000 |
| MAY | 0.00000 | 0.000 | 0.00000 | 0.000 | -1.33639 | -23.584 | 0.00000 | 0.000 |
| JUN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| JUL | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| AUG | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| SEP | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| OCT | 0.00000 | 0.000 | 0.00000 | 0.000 | -2.40120 | -28.578 | 0.00000 | 0.000 |
| NOV | 0.00000 | 0.000 | 0.00000 | 0.000 | -10.92310 | -35.851 | 0.00000 | 0.000 |
| DEC | 0.00000 | 0.000 | 0.00000 | 0.000 | -18.80719 | -42.089 | 0.00000 | 0.000 |
| TOTAL | 0.000 | | 0.000 | | -93.808 | | 0.000 | |
| MAX | | 0.000 | | 0.000 | | -70.170 | | 0.000 |

REPORT- SS-K SPACE TEMPERATURE SUMMARY 04SHWELEV WEATHER FILE- NEWARK, NJ

| MONTH | AVERAGE SPACE TEMP ALL HOURS (F) | COOLING HOURS (F) | HEATING HOURS (F) | FAN ON HOURS (F) | FAN OFF HOURS (F) | AVERAGE TEMPERATURE DIFFERENCE BETWEEN OUTDOOR& ROOM AIR ALL HOURS (F) | BETWEEN OUTDOOR& ROOM AIR FAN ON HOURS (F) | BETWEEN OUTDOOR& ROOM AIR FAN OFF HOURS (F) | SUMMED TEMP DIFFERENCE BETWEEN OUTDOOR& ROOM AIR HEATING HOURS (F) | BETWEEN OUTDOOR& ROOM AIR ALL HOURS (F) | HUMIDITY RATIO DIFFERENCE BETWEEN OUTDOOR AND ROOM AIR (FRAC.OR MULT. ) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | 69.81 | | 69.81 | 69.81 | 0.00 | -38.45 | -38.45 | 0.00 | 1190.08 | 1192.06 | -0.00025 |
| FEB | 69.83 | | 69.82 | 69.83 | 0.00 | -36.61 | -36.61 | 0.00 | 1022.48 | 1024.94 | -0.00025 |
| MAR | 69.92 | | 69.86 | 69.92 | 0.00 | -29.41 | -29.41 | 0.00 | 901.01 | 911.70 | -0.00024 |
| APR | 70.65 | | 69.91 | 70.65 | 0.00 | -17.75 | -17.75 | 0.00 | 467.41 | 533.82 | -0.00025 |
| MAY | 70.72 | | 69.94 | 73.13 | 68.45 | -8.43 | -10.47 | -6.52 | 108.25 | 295.47 | -0.00191 |
| JUN | 78.85 | | | 0.00 | 78.85 | -6.64 | 0.00 | -6.64 | | | -0.00076 |
| JUL | 82.32 | | | 0.00 | 82.32 | -6.85 | 0.00 | -6.85 | | | 0.00019 |
| AUG | 80.73 | | | 0.00 | 80.73 | -7.24 | 0.00 | -7.24 | | | 0.00073 |
| SEP | 73.89 | | | 0.00 | 73.89 | -6.90 | 0.00 | -6.90 | | | -0.00135 |
| OCT | 66.80 | | 69.94 | 70.58 | 62.76 | -9.71 | -13.11 | -6.08 | 168.83 | 311.97 | -0.00241 |
| NOV | 70.26 | | 69.89 | 70.26 | 0.00 | -24.04 | -24.04 | 0.00 | 696.10 | 721.09 | -0.00029 |
| DEC | 69.85 | | 69.83 | 69.85 | 0.00 | -34.30 | -34.30 | 0.00 | 1057.10 | 1063.38 | -0.00022 |
| ANNUAL | 72.82 | 0.00 | 69.86 | 70.31 | 76.30 | -18.77 | -27.42 | -6.79 | 5611.24 | 6937.85 | -0.00059 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11: 9:52 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- SS-F ZONE DEMAND SUMMARY IN 04SHWELEV FOR 03LHWELV WEATHER FILE- NEWARK, NJ

| | - - - -DEMANDS- - - - - | | - -BASEBOARDS- - - | | - -TEMPERATURES- - | | - -LOADS NOT MET- - | |
|---|---|---|---|---|---|---|---|---|
| MONTH | HEAT EXTRACTION ENERGY (MBTU) | HEAT ADDITION ENERGY (MBTU) | BASEBOARD ENERGY (MBTU) | MAXIMUM BASEBOARD LOAD (KBTU/HR) | MAXIMUM ZONE TEMP (F) | MINIMUM ZONE TEMP (F) | HOURS UNDER HEATED | HOURS UNDER COOLED |
| JAN | 0.00364 | -0.001 | -4.18313 | -14.594 | 70.7 | 69.5 | 0 | 0 |
| FEB | 0.00352 | -0.001 | -3.53836 | -13.297 | 70.1 | 69.6 | 0 | 0 |
| MAR | 0.00457 | -0.001 | -3.04704 | -8.564 | 73.8 | 69.7 | 0 | 0 |
| APR | 0.00568 | -0.006 | -1.38425 | -7.710 | 79.9 | 69.7 | 0 | 0 |
| MAY | 0.00331 | -0.004 | -0.27111 | -4.777 | 87.7* | 69.8 | 0 | 0 |
| JUN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.0 | 200.0 | 0 | 0 |
| JUL | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.0 | 200.0 | 0 | 0 |
| AUG | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.0 | 200.0 | 0 | 0 |
| SEP | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.0 | 200.0 | 0 | 0 |
| OCT | 0.00326 | -0.005 | -0.48151 | -5.872 | 78.3 | 69.8 | 0 | 0 |
| NOV | 0.00511 | -0.001 | -2.18267 | -7.380 | 79.2 | 69.8 | 0 | 0 |
| DEC | 0.00398 | -0.001 | -3.78570 | -8.592 | 73.0 | 69.7 | 0 | 0 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11: 9:52 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- SS-F ZONE DEMAND SUMMARY IN 04SHWELEV FOR 4LHWELV WEATHER FILE- NEWARK, NJ

| | ----DEMANDS----- | | --BASEBOARDS--- | | --TEMPERATURES-- | | --LOADS NOT MET-- | |
|---|---|---|---|---|---|---|---|---|
| MONTH | HEAT EXTRACTION ENERGY (MBTU) | HEAT ADDITION ENERGY (MBTU) | BASEBOARD ENERGY (MBTU) | MAXIMUM BASEBOARD LOAD (KBTU/HR) | MAXIMUM ZONE TEMP (F) | MINIMUM ZONE TEMP (F) | HOURS UNDER HEATED | HOURS UNDER COOLED |
| JAN | 0.00367 | -0.001 | -4.09665 | -11.793 | 70.4 | 69.6 | 0 | 0 |
| FEB | 0.00358 | -0.001 | -3.42965 | -11.325 | 70.1 | 69.6 | 0 | 0 |
| MAR | 0.00468 | -0.001 | -2.88654 | -7.587 | 74.5 | 69.7 | 0 | 0 |
| APR | 0.00585 | -0.006 | -1.31647 | -6.750 | 81.1 | 69.8 | 0 | 0 |
| MAY | 0.00344 | -0.004 | -0.25195 | -4.475 | 88.6 | 69.9 | 0 | 0 |
| JUN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.0 | 200.0 | 0 | 0 |
| JUL | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.0 | 200.0 | 0 | 0 |
| AUG | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.0 | 200.0 | 0 | 0 |
| SEP | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.0 | 200.0 | 0 | 0 |
| OCT | 0.00328 | -0.004 | -0.47515 | -5.090 | 78.9 | 69.8 | 0 | 0 |
| NOV | 0.00506 | -0.002 | -2.19242 | -6.589 | 79.1 | 69.8 | 0 | 0 |
| DEC | 0.00404 | -0.001 | -3.66441 | -8.111 | 73.2 | 69.7 | 0 | 0 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11: 9:52 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 0SDXHT WEATHER FILE- NEWARK, NJ

| | - - - - - - - - C O O L I N G - - - - - - - - | | | | | | - - - - - - - - H E A T I N G - - - - - - - - | | | | | | - - - E L E C - - - | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 6.29961 | 14 | 14 | 40.F | 32.F | 28.470 | -0.104 | 17 | 6 | 16.F | 14.F | -2.105 | 4812. | 13.637 |
| FEB | 5.40456 | 18 | 14 | 42.F | 34.F | 27.983 | -0.208 | 7 | 6 | 14.F | 12.F | -3.249 | 4350. | 13.637 |
| MAR | 7.11239 | 16 | 14 | 67.F | 50.F | 30.886 | -0.063 | 21 | 6 | 38.F | 33.F | -1.730 | 5013. | 13.637 |
| APR | 7.92157 | 21 | 14 | 80.F | 62.F | 33.024 | 0.000 | | | | | 0.000 | 4725. | 13.637 |
| MAY | 10.49622 | 10 | 14 | 87.F | 68.F | 37.916 | 0.000 | | | | | 0.000 | 4812. | 13.637 |
| JUN | 13.25140 | 30 | 14 | 91.F | 74.F | 40.430 | 0.000 | | | | | 0.000 | 4826. | 13.637 |
| JUL | 14.51261 | 13 | 14 | 90.F | 73.F | 42.417 | 0.000 | | | | | 0.000 | 4711. | 13.637 |
| AUG | 16.16099 | 18 | 14 | 93.F | 72.F | 43.749 | 0.000 | | | | | 0.000 | 5013. | 13.637 |
| SEP | 14.58331 | 7 | 13 | 82.F | 65.F | 41.812 | 0.000 | | | | | 0.000 | 4725. | 13.637 |
| OCT | 12.71041 | 14 | 14 | 75.F | 61.F | 38.581 | 0.000 | | | | | 0.000 | 4711. | 13.637 |
| NOV | 10.02704 | 2 | 14 | 77.F | 70.F | 36.445 | 0.000 | | | | | 0.000 | 4624. | 13.637 |
| DEC | 7.99638 | 2 | 14 | 64.F | 53.F | 32.338 | 0.000 | | | | | 0.000 | 4812. | 13.637 |
| | --------- | | | | | ---------- | --------- | | | | | ---------- | -------- | ------- |
| TOTAL | 126.476 | | | | | | -0.375 | | | | | | 57132. | |
| MAX | | | | | | 43.749 | | | | | | -3.249 | | 13.637 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11: 9:52 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 0SDXHT WEATHER FILE- NEWARK, NJ

| | --ZONE COOLING-- | | --ZONE HEATING- | | --BASEBOARDS-- | | ----PRE-HEAT--- | |
|---|---|---|---|---|---|---|---|---|
| MONTH | ZONE COIL COOLING ENERGY (MBTU) | MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR) | ZONE COIL HEATING ENERGY (MBTU) | MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR) | BASEBOARD HEATING ENERGY (MBTU) | MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR) | PRE-HEAT COIL ENERGY (MBTU) | MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR) |
| JAN | 0.00000 | 0.000 | 0.00000 | 0.000 | -0.10418 | -2.105 | 0.00000 | 0.000 |
| FEB | 0.00000 | 0.000 | 0.00000 | 0.000 | -0.20847 | -3.249 | 0.00000 | 0.000 |
| MAR | 0.00000 | 0.000 | 0.00000 | 0.000 | -0.06263 | -1.730 | 0.00000 | 0.000 |
| APR | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAY | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| JUN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| JUL | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| AUG | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| SEP | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| OCT | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| NOV | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| DEC | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| TOTAL | 0.000 | | 0.000 | | -0.375 | | 0.000 | |
| MAX | | 0.000 | | 0.000 | | -3.249 | | 0.000 |

ENTECH ENGINEERING    EZDOE - ELITE SOFTWARE DEVELOPMENT INC    DOE-2.1D    7/ 2/1996    11: 9:52  SDL RUN 1

READING, PA 19603    4130.05 FT. MONMOUTH - MYER CENTER, NJ  FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH

REPORT- SS-K  SPACE TEMPERATURE SUMMARY    0SDXHT    WEATHER FILE- NEWARK, NJ

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| MONTH | A V E R A G E S P A C E T E M P — ALL HOURS (F) | COOLING HOURS (F) | HEATING HOURS (F) | FAN ON HOURS (F) | FAN OFF HOURS (F) | AVERAGE TEMPERATURE DIFFERENCE — BETWEEN OUTDOOR& ROOM AIR ALL HOURS (F) | BETWEEN OUTDOOR& ROOM AIR FAN ON HOURS (F) | BETWEEN OUTDOOR& ROOM AIR FAN OFF HOURS (F) | SUMMED TEMP DIFFERENCE — BETWEEN OUTDOOR& ROOM AIR HEATING HOURS (F) | BETWEEN OUTDOOR& ROOM AIR ALL HOURS (F) | HUMIDITY RATIO DIFFERENCE BETWEEN OUTDOOR AND ROOM AIR (FRAC.OR MULT. ) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | 74.15 | 74.30 | 72.94 | 74.15 | 0.00 | -42.79 | -42.79 | 0.00 | 185.63 | 1326.57 | -0.00002 |
| FEB | 74.10 | 74.19 | 72.91 | 74.10 | 0.00 | -40.87 | -40.87 | 0.00 | 253.13 | 1144.49 | -0.00006 |
| MAR | 74.27 | 74.41 | 72.95 | 74.27 | 0.00 | -33.77 | -33.77 | 0.00 | 100.98 | 1046.77 | -0.00004 |
| APR | 74.48 | 74.56 | | 74.48 | 0.00 | -21.58 | -21.58 | 0.00 | | 649.89 | 0.00010 |
| MAY | 74.65 | 74.65 | | 74.65 | 0.00 | -12.37 | -12.37 | 0.00 | | 436.12 | 0.00066 |
| JUN | 74.84 | 74.84 | | 74.84 | 0.00 | -2.63 | -2.63 | 0.00 | | 212.96 | 0.00254 |
| JUL | 74.89 | 74.89 | | 74.89 | 0.00 | 0.58 | 0.58 | 0.00 | | 169.67 | 0.00319 |
| AUG | 74.99 | 74.99 | | 74.99 | 0.00 | -1.50 | -1.50 | 0.00 | | 193.28 | 0.00371 |
| SEP | 74.93 | 74.93 | | 74.93 | 0.00 | -7.94 | -7.94 | 0.00 | | 259.54 | 0.00236 |
| OCT | 74.79 | 74.79 | | 74.79 | 0.00 | -17.70 | -17.70 | 0.00 | | 553.23 | 0.00060 |
| NOV | 74.64 | 74.64 | | 74.64 | 0.00 | -28.42 | -28.42 | 0.00 | | 853.02 | 0.00028 |
| DEC | 74.49 | 74.51 | | 74.49 | 0.00 | -38.95 | -38.95 | 0.00 | | 1207.38 | -0.00005 |
| ANNUAL | 74.61 | 74.66 | 72.93 | 74.61 | 0.00 | -20.56 | -20.56 | 0.00 | 539.74 | 8052.93 | 0.00111 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11: 9:52 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- SS-F ZONE DEMAND SUMMARY IN 0SDXHT FOR 0LDXHT WEATHER FILE- NEWARK, NJ

| | ----DEMANDS----- | | --BASEBOARDS--- | | --TEMPERATURES-- | | --LOADS NOT MET-- | |
|---|---|---|---|---|---|---|---|---|
| MONTH | HEAT EXTRACTION ENERGY (MBTU) | HEAT ADDITION ENERGY (MBTU) | BASEBOARD ENERGY (MBTU) | MAXIMUM BASEBOARD LOAD (KBTU/HR) | MAXIMUM ZONE TEMP (F) | MINIMUM ZONE TEMP (F) | HOURS UNDER HEATED | HOURS UNDER COOLED |
| JAN | 4.30086 | -1.720 | -0.10418 | -2.105 | 75.3 | 72.9 | 0 | 0 |
| FEB | 3.73289 | -1.690 | -0.20847 | -3.249 | 75.3 | 72.8 | 0 | 0 |
| MAR | 4.94455 | -1.548 | -0.06263 | -1.730 | 75.4 | 72.9 | 0 | 0 |
| APR | 5.30856 | -1.001 | 0.00000 | 0.000 | 75.5 | 73.2 | 0 | 0 |
| MAY | 6.90018 | -0.242 | 0.00000 | 0.000 | 75.7 | 74.1 | 0 | 0 |
| JUN | 9.41340 | 0.000 | 0.00000 | 0.000 | 75.8 | 74.2 | 0 | 0 |
| JUL | 10.56290 | 0.000 | 0.00000 | 0.000 | 75.9 | 74.3 | 0 | 0 |
| AUG | 12.17193 | 0.000 | 0.00000 | 0.000 | 75.9 | 74.4 | 0 | 0 |
| SEP | 10.82609 | 0.000 | 0.00000 | 0.000 | 75.9 | 74.3 | 0 | 0 |
| OCT | 8.91010 | 0.000 | 0.00000 | 0.000 | 75.8 | 74.3 | 0 | 0 |
| NOV | 6.55245 | -0.159 | 0.00000 | 0.000 | 75.7 | 74.1 | 0 | 0 |
| DEC | 5.26215 | -0.974 | 0.00000 | 0.000 | 75.5 | 73.7 | 0 | 0 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11: 9:52 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 0SDXNOHT WEATHER FILE- NEWARK, NJ

| | - - - - - - - - C O O L I N G - - - - - - - - | | | | | | - - - - - - - - H E A T I N G - - - - - - - - | | | | | | - - - E L E C - - - | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | COOLING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM COOLING LOAD (KBTU/HR) | HEATING ENERGY (MBTU) | TIME OF MAX DY | TIME OF MAX HR | DRY-BULB TEMP | WET-BULB TEMP | MAXIMUM HEATING LOAD (KBTU/HR) | ELEC-TRICAL ENERGY (KWH) | MAXIMUM ELEC LOAD (KW) |
| JAN | 14.36400 | 25 | 14 | 52.F | 41.F | 50.562 | 0.000 | | | | | 0.000 | 7287. | 20.697 |
| FEB | 12.83054 | 11 | 14 | 52.F | 50.F | 50.644 | 0.000 | | | | | 0.000 | 6586. | 20.697 |
| MAR | 16.48144 | 15 | 15 | 65.F | 58.F | 53.329 | 0.000 | | | | | 0.000 | 7593. | 20.697 |
| APR | 17.45968 | 22 | 14 | 68.F | 60.F | 56.450 | 0.000 | | | | | 0.000 | 7155. | 20.697 |
| MAY | 20.68633 | 10 | 14 | 87.F | 68.F | 61.186 | 0.000 | | | | | 0.000 | 7287. | 20.697 |
| JUN | 23.55266 | 14 | 14 | 88.F | 74.F | 63.584 | 0.000 | | | | | 0.000 | 7308. | 20.697 |
| JUL | 24.38587 | 13 | 14 | 90.F | 73.F | 65.283 | 0.000 | | | | | 0.000 | 7133. | 20.697 |
| AUG | 26.03597 | 18 | 14 | 93.F | 72.F | 66.099 | 0.000 | | | | | 0.000 | 7593. | 20.697 |
| SEP | 23.36196 | 20 | 14 | 83.F | 72.F | 64.302 | 0.000 | | | | | 0.000 | 7155. | 20.697 |
| OCT | 20.90982 | 21 | 14 | 68.F | 60.F | 60.739 | 0.000 | | | | | 0.000 | 7133. | 20.697 |
| NOV | 17.93601 | 2 | 14 | 77.F | 70.F | 60.514 | 0.000 | | | | | 0.000 | 7002. | 20.697 |
| DEC | 16.11394 | 2 | 14 | 64.F | 53.F | 54.170 | 0.000 | | | | | 0.000 | 7287. | 20.697 |
| TOTAL | 234.119 | | | | | | 0.000 | | | | | | 86517. | |
| MAX | | | | | | 66.099 | | | | | | 0.000 | | 20.697 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11: 9:52 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 0SDXNOHT WEATHER FILE- NEWARK, NJ

| | --ZONE COOLING-- | | --ZONE HEATING- | | --BASEBOARDS-- | | ----PRE-HEAT--- | |
|---|---|---|---|---|---|---|---|---|
| MONTH | ZONE COIL COOLING ENERGY (MBTU) | MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR) | ZONE COIL HEATING ENERGY (MBTU) | MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR) | BASEBOARD HEATING ENERGY (MBTU) | MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR) | PRE-HEAT COIL ENERGY (MBTU) | MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR) |
| JAN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| FEB | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAR | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| APR | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| MAY | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| JUN | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| JUL | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| AUG | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| SEP | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| OCT | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| NOV | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| DEC | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 | 0.00000 | 0.000 |
| TOTAL | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| MAX | | 0.000 | | 0.000 | | 0.000 | | 0.000 |

--------------------------------------------------------------------------------

| | AVERAGE SPACE TEMP | | | | | AVERAGE TEMPERATURE DIFFERENCE | | | SUMMED TEMP DIFFERENCE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | ALL HOURS (F) | COOLING HOURS (F) | HEATING HOURS (F) | FAN ON HOURS (F) | FAN OFF HOURS (F) | BETWEEN OUTDOOR& ROOM AIR ALL HOURS (F) | BETWEEN OUTDOOR& ROOM AIR FAN ON HOURS (F) | BETWEEN OUTDOOR& ROOM AIR FAN OFF HOURS (F) | BETWEEN OUTDOOR& ROOM AIR HEATING HOURS (F) | BETWEEN OUTDOOR& ROOM AIR ALL HOURS (F) | HUMIDITY RATIO DIFFERENCE BETWEEN OUTDOOR AND ROOM AIR (FRAC.OR MULT. ) |
| JAN | 74.60 | 74.60 | | 74.60 | 0.00 | -43.24 | -43.24 | 0.00 | | 1340.47 | -0.00002 |
| FEB | 74.59 | 74.59 | | 74.59 | 0.00 | -41.37 | -41.37 | 0.00 | | 1158.46 | -0.00005 |
| MAR | 74.69 | 74.69 | | 74.69 | 0.00 | -34.19 | -34.19 | 0.00 | | 1059.80 | -0.00004 |
| APR | 74.76 | 74.76 | | 74.76 | 0.00 | -21.86 | -21.86 | 0.00 | | 657.86 | 0.00010 |
| MAY | 74.86 | 74.86 | | 74.86 | 0.00 | -12.58 | -12.58 | 0.00 | | 440.84 | 0.00066 |
| JUN | 75.00 | 75.00 | | 75.00 | 0.00 | -2.79 | -2.79 | 0.00 | | 214.41 | 0.00253 |
| JUL | 75.00 | 75.00 | | 75.00 | 0.00 | 0.47 | 0.47 | 0.00 | | 169.89 | 0.00319 |
| AUG | 75.07 | 75.07 | | 75.07 | 0.00 | -1.58 | -1.58 | 0.00 | | 194.01 | 0.00370 |
| SEP | 75.00 | 75.00 | | 75.00 | 0.00 | -8.01 | -8.01 | 0.00 | | 261.06 | 0.00236 |
| OCT | 74.87 | 74.87 | | 74.87 | 0.00 | -17.78 | -17.78 | 0.00 | | 555.71 | 0.00060 |
| NOV | 74.78 | 74.78 | | 74.78 | 0.00 | -28.55 | -28.55 | 0.00 | | 856.88 | 0.00028 |
| DEC | 74.68 | 74.68 | | 74.68 | 0.00 | -39.13 | -39.13 | 0.00 | | 1212.97 | -0.00005 |
| ANNUAL | 74.83 | 74.83 | 0.00 | 74.83 | 0.00 | -20.78 | -20.78 | 0.00 | 0.00 | 8122.36 | 0.00111 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11: 9:52 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- SS-F ZONE DEMAND SUMMARY IN 0SDXNOHT FOR 0LDXONLY WEATHER FILE- NEWARK, NJ

| | ----DEMANDS----- | | --BASEBOARDS--- | | --TEMPERATURES-- | | --LOADS NOT MET-- | |
|---|---|---|---|---|---|---|---|---|
| MONTH | HEAT EXTRACTION ENERGY (MBTU) | HEAT ADDITION ENERGY (MBTU) | BASEBOARD ENERGY (MBTU) | MAXIMUM BASEBOARD LOAD (KBTU/HR) | MAXIMUM ZONE TEMP (F) | MINIMUM ZONE TEMP (F) | HOURS UNDER HEATED | HOURS UNDER COOLED |
| JAN | 9.40461 | -0.585 | 0.00000 | 0.000 | 75.6 | 74.1 | 0 | 0 |
| FEB | 8.52285 | -0.699 | 0.00000 | 0.000 | 75.6 | 74.0 | 0 | 0 |
| MAR | 11.21039 | -0.276 | 0.00000 | 0.000 | 75.7 | 74.1 | 0 | 0 |
| APR | 12.09204 | -0.049 | 0.00000 | 0.000 | 75.8 | 74.2 | 0 | 0 |
| MAY | 14.96230 | 0.000 | 0.00000 | 0.000 | 75.8 | 74.3 | 0 | 0 |
| JUN | 17.82047 | 0.000 | 0.00000 | 0.000 | 75.9 | 74.4 | 0 | 0 |
| JUL | 18.48841 | 0.000 | 0.00000 | 0.000 | 76.0 | 74.5 | 0 | 0 |
| AUG | 20.07511 | 0.000 | 0.00000 | 0.000 | 76.0 | 74.4 | 0 | 0 |
| SEP | 17.75377 | 0.000 | 0.00000 | 0.000 | 75.9 | 74.4 | 0 | 0 |
| OCT | 15.23885 | 0.000 | 0.00000 | 0.000 | 75.8 | 74.3 | 0 | 0 |
| NOV | 12.51310 | 0.000 | 0.00000 | 0.000 | 75.8 | 74.2 | 0 | 0 |
| DEC | 10.74324 | -0.172 | 0.00000 | 0.000 | 75.7 | 74.1 | 0 | 0 |

REPORT- PS-D PLANT LOADS SATISFIED WEATHER FILE- NEWARK, NJ

| HEATING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| STM-BOILER | 869.3 | 100.0 |
| DHW-HEATER | 0.0 | 0.0 |
| LOAD SATISFIED | 869.3 | 100.0 |
| TOTAL LOAD ON PLANT | 869.3 | |

| COOLING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HERM-REC-CHLR | 16276.7 | 100.0 |
| LOAD SATISFIED | 16276.7 | 100.0 |
| TOTAL LOAD ON PLANT | 16276.7 | |

| ELECTRICAL LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| ELECTRICITY | 26099.9 | 100.0 |
| LOAD SATISFIED | 26099.9 | 100.0 |
| TOTAL LOAD ON PLANT | 26099.9 | |

SUMMARY OF LOADS MET

| TYPE OF LOAD | TOTAL LOAD (MBTU) | LOAD SATISFIED (MBTU) | TOTAL OVERLOAD (MBTU) | PEAK OVERLOAD (MBTU) | HOURS OVERLOADED |
|---|---|---|---|---|---|
| HEATING LOADS | 869.3 | 869.3 | 0.000 | 0.000 | 0 |
| COOLING LOADS | 16276.7 | 16276.7 | 0.027 | 0.018 | 2 |
| ELECTRICAL LOADS | 26099.9 | 26099.9 | 0.000 | 0.000 | 0 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 10:44:58 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
RS_1 = HOURLY-REPORT PAGE 1- 1

CA3
EXISTING
ON PEAK

| MMDDHH | 1SDXHT | 1SDX | 2SDX | 3SDX | 4SDX | 1SHWONLY | 04SHWELEV | 0SDXHT | 0SDXNOHT |
|---|---|---|---|---|---|---|---|---|---|
| | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW |
| | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) |
| MONTHLY SUMMARY (JAN) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 5090.904 | 2592.626 | 5457.761 | 3723.353 | 13630.595 | 0.197 | 0.983 | 371.498 | 554.299 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MONTHLY SUMMARY (FEB) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 4606.056 | 2345.709 | 4937.974 | 3368.748 | 12332.442 | 0.178 | 0.889 | 336.118 | 501.509 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MONTHLY SUMMARY (MAR) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 5575.751 | 2839.543 | 5977.548 | 4077.958 | 14928.747 | 0.215 | 1.076 | 406.879 | 607.090 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MONTHLY SUMMARY (APR) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 5090.904 | 2592.626 | 5457.761 | 3723.353 | 13630.595 | 0.197 | 0.983 | 371.498 | 554.299 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MONTHLY SUMMARY (MAY) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 5090.904 | 2592.626 | 5457.761 | 3723.353 | 13630.595 | 0.094 | 0.468 | 371.498 | 554.299 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.002 | 1.474 | 2.200 |
| MONTHLY SUMMARY (JUN) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| SM | 5333.328 | 2716.085 | 5717.655 | 3900.655 | 14279.671 | 0.000 | 0.000 | 389.189 | 580.694 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MONTHLY SUMMARY (JUL) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| SM | 4848.480 | 2469.168 | 5197.868 | 3546.050 | 12981.519 | 0.000 | 0.000 | 353.808 | 527.904 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |

ENTECH ENGINEERING          EZDOE - ELITE SOFTWARE DEVELOPMENT INC          DOE-2.1D   7/ 2/1996   10:44:58 SDL RUN 1
READING,   PA   19603          4130.05 FT. MONMOUTH - MYER CENTER, NJ  FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
RS_1          = HOURLY-REPORT          PAGE 2- 1

| | 1SDXHT | 1SDX | 2SDX | 3SDX | 4SDX | 1SHWONLY | 04SHWELE V | 0SDXHT | 0SDXNOHT |
|---|---|---|---|---|---|---|---|---|---|
| | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW |
| | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) |
| MONTHLY SUMMARY (AUG) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| SM | 5575.751 | 2839.543 | 5977.548 | 4077.958 | 14928.747 | 0.000 | 0.000 | 406.879 | 607.090 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MONTHLY SUMMARY (SEP) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| SM | 5090.904 | 2592.626 | 5457.761 | 3723.353 | 13630.595 | 0.000 | 0.000 | 371.498 | 554.299 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MONTHLY SUMMARY (OCT) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 4848.480 | 2469.168 | 5197.868 | 3546.050 | 12981.519 | 0.103 | 0.515 | 353.808 | 527.904 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.002 | 1.474 | 2.200 |
| MONTHLY SUMMARY (NOV) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 4848.480 | 2469.168 | 5197.868 | 3546.050 | 12981.519 | 0.187 | 0.936 | 353.808 | 527.904 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MONTHLY SUMMARY (DEC) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 5090.904 | 2592.626 | 5457.761 | 3723.353 | 13630.595 | 0.197 | 0.983 | 371.498 | 554.299 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| YEARLY SUMMARY | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 61090.844 | 31111.520 | 65493.133 | 44680.230 | 163567.141 | 1.367 | 6.833 | 4457.981 | 6651.591 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.002 | 1.474 | 2.200 |

| E Q U I P M E N T | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STM-BOILER | 0.591 | 1 | 1 | | | | | | | | | | | | | | | |
| DHW-HEATER | 0.000 | 1 | 1 | | | | | | | | | | | | | | | |
| HERM-REC-CHLR | 3.892 | 1 | 1 | | | | | | | | | | | | | | | |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 10:44:58 PDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
REPORT- PS-B MONTHLY PEAK AND TOTAL ENERGY USE WEATHER FILE- NEWARK, NJ

| MO | UTILITY- | ELECTRICITY | FUEL-OIL | NATURAL-GAS |
|---|---|---|---|---|
| | TOTAL (MBTU) | 2153.016 | 287.883 | 0.000 |
| JAN | PEAK (KBTU) | 5076.708 | 767.666 | 0.000 |
| | DY/HR | 13/14 | 5/20 | 31/24 |
| | TOTAL (MBTU) | 1951.146 | 248.988 | 0.000 |
| FEB | PEAK (KBTU) | 5085.388 | 764.186 | 0.000 |
| | DY/HR | 15/14 | 20/ 3 | 28/24 |
| | TOTAL (MBTU) | 2249.282 | 217.413 | 0.000 |
| MAR | PEAK (KBTU) | 5114.029 | 709.479 | 0.000 |
| | DY/HR | 16/14 | 5/ 1 | 31/24 |
| | TOTAL (MBTU) | 2154.637 | 82.869 | 0.000 |
| APR | PEAK (KBTU) | 5172.894 | 626.246 | 0.000 |
| | DY/HR | 21/14 | 9/ 4 | 30/ 1 |
| | TOTAL (MBTU) | 2219.887 | 13.871 | 0.000 |
| MAY | PEAK (KBTU) | 5229.586 | 356.551 | 0.000 |
| | DY/HR | 10/14 | 4/ 2 | 31/ 1 |
| | TOTAL (MBTU) | 2223.483 | 0.000 | 0.000 |
| JUN | PEAK (KBTU) | 5290.973 | 0.000 | 0.000 |
| | DY/HR | 13/14 | 30/ 1 | 30/ 1 |
| | TOTAL (MBTU) | 2217.316 | 0.000 | 0.000 |
| JUL | PEAK (KBTU) | 5249.647 | 0.000 | 0.000 |
| | DY/HR | 13/13 | 31/ 1 | 31/ 1 |
| | TOTAL (MBTU) | 2308.327 | 0.000 | 0.000 |
| AUG | PEAK (KBTU) | 5269.803 | 0.000 | 0.000 |
| | DY/HR | 18/14 | 31/ 1 | 31/ 1 |
| | TOTAL (MBTU) | 2174.473 | 0.000 | 0.000 |
| SEP | PEAK (KBTU) | 5198.902 | 0.000 | 0.000 |
| | DY/HR | 7/14 | 30/ 1 | 30/ 1 |
| | TOTAL (MBTU) | 2173.409 | 24.376 | 0.000 |
| OCT | PEAK (KBTU) | 5158.363 | 469.762 | 0.000 |
| | DY/HR | 14/14 | 25/ 6 | 31/24 |
| | TOTAL (MBTU) | 2108.344 | 139.934 | 0.000 |
| NOV | PEAK (KBTU) | 5156.199 | 647.688 | 0.000 |
| | DY/HR | 2/14 | 25/ 6 | 30/24 |
| | TOTAL (MBTU) | 2166.566 | 274.207 | 0.000 |
| DEC | PEAK (KBTU) | 5098.862 | 721.583 | 0.000 |
| | DY/HR | 2/14 | 24/13 | 31/24 |
| | ONE YEAR | 26099.888 | 1289.541 | 0.000 |
| | USE/PEAK | 5290.973 | 767.666 | 0.000 |

| HEATING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| STM-BOILER | 869.3 | 100.0 |
| DHW-HEATER | 0.0 | 0.0 |
| LOAD SATISFIED | 869.3 | 100.0 |
| TOTAL LOAD ON PLANT | 869.3 | |

| COOLING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HERM-REC-CHLR | 16276.7 | 100.0 |
| LOAD SATISFIED | 16276.7 | 100.0 |
| TOTAL LOAD ON PLANT | 16276.7 | |

| ELECTRICAL LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| ELECTRICITY | 26099.9 | 100.0 |
| LOAD SATISFIED | 26099.9 | 100.0 |
| TOTAL LOAD ON PLANT | 26099.9 | |

SUMMARY OF LOADS MET

| TYPE OF LOAD | TOTAL LOAD (MBTU) | LOAD SATISFIED (MBTU) | TOTAL OVERLOAD (MBTU) | PEAK OVERLOAD (MBTU) | HOURS OVERLOADED |
|---|---|---|---|---|---|
| HEATING LOADS | 869.3 | 869.3 | 0.000 | 0.000 | 0 |
| COOLING LOADS | 16276.7 | 16276.7 | 0.027 | 0.018 | 2 |
| ELECTRICAL LOADS | 26099.9 | 26099.9 | 0.000 | 0.000 | 0 |

| MMDDHH | HERM-REC -CHLR ELECTRIC USE BTU/HR | HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR | STM-BOIL ER ELECTRIC USE BTU/HR | STM-BOIL ER FUEL USE BTU/HR |
|---|---|---|---|---|
| | ----( 3) | ----(18) | ----( 3) | ----( 4) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 937605. | 583796. | 515. | 9936. |
| MX | 1082899. | 583796. | 12991. | 759552. |
| SM | 256205232. | 147116464. | 2475849. | 81060664. |
| AV | 1016687. | 583796. | 9825. | 321669. |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 928071. | 583796. | 515. | 9936. |
| MX | 1088467. | 583796. | 12991. | 658489. |
| SM | 233673600. | 133105368. | 2016624. | 52371964. |
| AV | 1024884. | 583796. | 8845. | 229702. |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 957016. | 583796. | 515. | 9936. |
| MX | 1122546. | 583796. | 12991. | 674536. |
| SM | 287182592. | 161127568. | 2031500. | 54446080. |
| AV | 1040517. | 583796. | 7361. | 197268. |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 966029. | 583796. | 515. | 9936. |
| MX | 1183155. | 583796. | 12991. | 488100. |
| SM | 268408896. | 147116464. | 693315. | 15506258. |
| AV | 1065115. | 583796. | 2751. | 61533. |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 985677. | 583796. | 0. | 0. |
| MX | 1238328. | 583796. | 12991. | 257973. |
| SM | 275527424. | 147116464. | 116774. | 2262290. |
| AV | 1093363. | 583796. | 463. | 8977. |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 1016320. | 583796. | 0. | 0. |
| MX | 1304448. | 583796. | 0. | 0. |
| SM | 298948832. | 154122016. | 0. | 0. |
| AV | 1132382. | 583796. | 0. | 0. |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 1026370. | 583796. | 0. | 0. |
| MX | 1258694. | 583796. | 0. | 0. |
| SM | 274606400. | 140110912. | 0. | 0. |
| AV | 1144193. | 583795. | 0. | 0. |

| | HERM-REC -CHLR ELECTRIC USE BTU/HR | HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR | STM-BOIL ER ELECTRIC USE BTU/HR | STM-BOIL ER FUEL USE BTU/HR |
|---|---|---|---|---|
| | ----( 3) | ----(18) | ----( 3) | ----( 4) |
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 1013925. | 583796. | 0. | 0. |
| MX | 1280765. | 583796. | 0. | 0. |
| SM | 315750784. | 161127568. | 0. | 0. |
| AV | 1144025. | 583796. | 0. | 0. |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 993271. | 583796. | 0. | 0. |
| MX | 1207949. | 583796. | 0. | 0. |
| SM | 276855072. | 147116464. | 0. | 0. |
| AV | 1098631. | 583796. | 0. | 0. |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 975607. | 583796. | 0. | 0. |
| MX | 1167410. | 583796. | 12991. | 324996. |
| SM | 255514720. | 140110912. | 241270. | 4736180. |
| AV | 1064645. | 583795. | 1005. | 19734. |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 963000. | 583796. | 515. | 9936. |
| MX | 1164715. | 583796. | 12991. | 558733. |
| SM | 250589440. | 140110912. | 1249340. | 30270674. |
| AV | 1044123. | 583795. | 5206. | 126128. |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 945033. | 583796. | 515. | 9936. |
| MX | 1107379. | 583796. | 12991. | 717930. |
| SM | 257862176. | 147116464. | 2506830. | 71439856. |
| AV | 1023263. | 583796. | 9948. | 283492. |
| YEARLY SUMMARY | | | | |
| MN | 928071. | 583796. | 0. | 0. |
| MX | 1304448. | 583796. | 12991. | 759552. |
| SM | 3251125248. | 1765397376. | 11331503. | 312093952. |
| AV | 1075108. | 583795. | 3747. | 103206. |

CA3
Existing
Off-Peak

| MMDDHH | 1SDXHT | 1SDX | 2SDX | 3SDX | 4SDX | 1SHWONLY | 04SHWELEV | 0SDXHT | 0SDXNOHT |
|---|---|---|---|---|---|---|---|---|---|
| | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW |
| | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) |
| MONTHLY SUMMARY (JAN) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 9939.382 | 5061.797 | 10655.630 | 7269.405 | 26612.115 | 0.384 | 1.919 | 725.307 | 1082.203 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MONTHLY SUMMARY (FEB) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 8969.687 | 4567.963 | 9616.056 | 6560.194 | 24015.811 | 0.346 | 1.732 | 654.545 | 976.622 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MONTHLY SUMMARY (MAR) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 9454.534 | 4814.880 | 10135.844 | 6914.800 | 25313.963 | 0.365 | 1.825 | 689.926 | 1029.413 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MONTHLY SUMMARY (APR) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 9454.534 | 4814.880 | 10135.844 | 6914.800 | 25313.963 | 0.365 | 1.825 | 689.926 | 1029.413 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MONTHLY SUMMARY (MAY) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 9939.382 | 5061.797 | 10655.630 | 7269.404 | 26612.115 | 0.187 | 0.936 | 725.307 | 1082.203 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.002 | 1.474 | 2.200 |
| MONTHLY SUMMARY (JUN) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| SM | 9212.109 | 4691.421 | 9875.950 | 6737.497 | 24664.885 | 0.000 | 0.000 | 672.235 | 1003.018 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MONTHLY SUMMARY (JUL) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| SM | 10181.806 | 5185.255 | 10915.524 | 7446.708 | 27261.189 | 0.000 | 0.000 | 742.997 | 1108.599 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |

| | 1SDXHT | 1SDX | 2SDX | 3SDX | 4SDX | 1SHWONLY | 04SHWELE V | 0SDXHT | 0SDXNOHT |
|---|---|---|---|---|---|---|---|---|---|
| | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW |
| | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) |
| MONTHLY SUMMARY (AUG) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| SM | 9454.534 | 4814.880 | 10135.844 | 6914.799 | 25313.963 | 0.000 | 0.000 | 689.926 | 1029.413 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MONTHLY SUMMARY (SEP) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| SM | 9454.534 | 4814.880 | 10135.844 | 6914.800 | 25313.961 | 0.000 | 0.000 | 689.926 | 1029.413 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MONTHLY SUMMARY (OCT) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 10181.806 | 5185.255 | 10915.524 | 7446.708 | 27261.191 | 0.197 | 0.983 | 742.997 | 1108.598 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.002 | 1.474 | 2.200 |
| MONTHLY SUMMARY (NOV) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 9696.958 | 4938.338 | 10395.737 | 7092.102 | 25963.037 | 0.374 | 1.872 | 707.616 | 1055.808 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MONTHLY SUMMARY (DEC) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 9939.382 | 5061.797 | 10655.631 | 7269.405 | 26612.113 | 0.384 | 1.919 | 725.307 | 1082.203 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| YEARLY SUMMARY | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 115878.648 | 59013.141 | 124229.055 | 84750.625 | 310258.313 | 2.602 | 13.010 | 8456.014 | 12616.906 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.002 | 1.474 | 2.200 |

| EQUIPMENT | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STM-BOILER | 0.591 | 1 | 1 | | | | | | | | | | | | | | | |
| DHW-HEATER | 0.000 | 1 | 1 | | | | | | | | | | | | | | | |
| HERM-REC-CHLR | 3.892 | 1 | 1 | | | | | | | | | | | | | | | |

| HEATING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| STM-BOILER | 869.3 | 100.0 |
| DHW-HEATER | 0.0 | 0.0 |
| LOAD SATISFIED | 869.3 | 100.0 |
| TOTAL LOAD ON PLANT | 869.3 | |

| COOLING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HERM-REC-CHLR | 16276.7 | 100.0 |
| LOAD SATISFIED | 16276.7 | 100.0 |
| TOTAL LOAD ON PLANT | 16276.7 | |

| ELECTRICAL LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| ELECTRICITY | 26099.9 | 100.0 |
| LOAD SATISFIED | 26099.9 | 100.0 |
| TOTAL LOAD ON PLANT | 26099.9 | |

SUMMARY OF LOADS MET

| TYPE OF LOAD | TOTAL LOAD (MBTU) | LOAD SATISFIED (MBTU) | TOTAL OVERLOAD (MBTU) | PEAK OVERLOAD (MBTU) | HOURS OVERLOADED |
|---|---|---|---|---|---|
| HEATING LOADS | 869.3 | 869.3 | 0.000 | 0.000 | 0 |
| COOLING LOADS | 16276.7 | 16276.7 | 0.027 | 0.018 | 2 |
| ELECTRICAL LOADS | 26099.9 | 26099.9 | 0.000 | 0.000 | 0 |

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL | NATURAL-GAS |
|---|---|---|---|
| CATEGORY OF USE | | | |
| SPACE HEAT | 43.20 | 1289.53 | 0.00 |
| SPACE COOL | 7908.29 | 0.00 | 0.00 |
| HVAC AUX | 4941.25 | 0.00 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 | 0.00 |
| LIGHTS | 4983.87 | 0.00 | 0.00 |
| VERT TRANS | 0.00 | 0.00 | 0.00 |
| MISC EQUIP | 8224.01 | 0.00 | 0.00 |
| TOTAL | 26100.61 | 1289.53 | 0.00 |

TOTAL SITE ENERGY 27389.43 MBTU 213.2 KBTU/SQFT-YR GROSS-AREA 213.2 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 79667.59 MBTU 620.1 KBTU/SQFT-YR GROSS-AREA 620.1 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 9.6
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

| MMDDHH | HERM-REC -CHLR ELECTRIC USE BTU/HR | HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR | STM-BOIL ER ELECTRIC USE BTU/HR | STM-BOIL ER FUEL USE BTU/HR |
|---|---|---|---|---|
| | ----( 3) | ----(18) | ----( 3) | ----( 4) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 535361. | 401088. | 1605. | 31005. |
| MX | 876201. | 583796. | 12991. | 767666. |
| SM | 358254432. | 263037744. | 6162833. | 206822576. |
| AV | 728159. | 534630. | 12526. | 420371. |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 527142. | 394952. | 1885. | 36397. |
| MX | 875766. | 583796. | 12991. | 764186. |
| SM | 327136096. | 239127616. | 5541246. | 196616144. |
| AV | 736793. | 538576. | 12480. | 442829. |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 631776. | 473001. | 731. | 14115. |
| MX | 900159. | 583796. | 12991. | 709479. |
| SM | 367624640. | 266104240. | 5632770. | 162967184. |
| AV | 785523. | 568599. | 12036. | 348220. |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 661938. | 495478. | 515. | 9936. |
| MX | 923082. | 583796. | 12991. | 626246. |
| SM | 382968384. | 271392160. | 2730110. | 67362896. |
| AV | 818309. | 579898. | 5834. | 143938. |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 743947. | 556541. | 0. | 0. |
| MX | 975469. | 583796. | 12991. | 356551. |
| SM | 413771104. | 287143520. | 561445. | 11608750. |
| AV | 840998. | 583625. | 1141. | 23595. |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 798306. | 583796. | 0. | 0. |
| MX | 1003135. | 583796. | 0. | 0. |
| SM | 396264192. | 266210880. | 0. | 0. |
| AV | 869000. | 583796. | 0. | 0. |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 804028. | 583796. | 0. | 0. |
| MX | 992180. | 583796. | 0. | 0. |
| SM | 441250368. | 294233088. | 0. | 0. |
| AV | 875497. | 583796. | 0. | 0. |

| | HERM-REC -CHLR ELECTRIC USE BTU/HR | HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR | STM-BOIL ER ELECTRIC USE BTU/HR | STM-BOIL ER FUEL USE BTU/HR |
|---|---|---|---|---|
| | ----( 3) | ----(18) | ----( 3) | ----( 4) |
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 788823. | 583796. | 0. | 0. |
| MX | 991107. | 583796. | 0. | 0. |
| SM | 405776256. | 273216416. | 0. | 0. |
| AV | 867043. | 583796. | 0. | 0. |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 781980. | 583796. | 0. | 0. |
| MX | 948940. | 583796. | 0. | 0. |
| SM | 397793312. | 273216416. | 0. | 0. |
| AV | 849986. | 583796. | 0. | 0. |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 683149. | 511279. | 0. | 0. |
| MX | 907671. | 583796. | 12991. | 469762. |
| SM | 415276384. | 293634560. | 910581. | 19639862. |
| AV | 823961. | 582608. | 1807. | 38968. |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 626375. | 468976. | 515. | 9936. |
| MX | 922674. | 583796. | 12991. | 647688. |
| SM | 380792512. | 274897728. | 4323636. | 109662880. |
| AV | 793318. | 572704. | 9008. | 228464. |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 546128. | 409124. | 515. | 9936. |
| MX | 885942. | 583796. | 12991. | 721583. |
| SM | 370277664. | 270221984. | 6001262. | 202766960. |
| AV | 752597. | 549232. | 12198. | 412128. |
| YEARLY SUMMARY | | | | |
| MN | 527142. | 394952. | 0. | 0. |
| MX | 1003135. | 583796. | 12991. | 767666. |
| SM | 4657185792. | 3272436736. | 31863882. | 977447296. |
| AV | 811922. | 570509. | 5555. | 170406. |

Attachment 8.12

EZDOE ECO Results

ECO-2



MCA SUMMER
SETBACK @ 80°F

Off Peak Usage

| MMDDHH | 1SMCAHUS ZR SUPPLY ELECTRIC KW | 2SPERFC SUPPLY ELECTRIC KW | 3SPERFC SUPPLY ELECTRIC KW | 4SPERFC SUPPLY ELECTRIC KW |
|---|---|---|---|---|
| | ----(49) | ----(49) | ----(49) | ----(49) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 0.000 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 1262.789 | 749.415 | 749.415 | 878.909 |
| AV | 2.567 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 0.000 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 1142.523 | 676.301 | 676.301 | 793.162 |
| AV | 2.573 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 0.000 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 1383.055 | 712.858 | 712.858 | 836.035 |
| AV | 2.955 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 0.000 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 3758.301 | 712.858 | 712.858 | 836.035 |
| AV | 8.031 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 0.000 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 5923.082 | 749.415 | 749.415 | 878.909 |
| AV | 12.039 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 0.000 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 4239.363 | 694.579 | 694.579 | 814.599 |
| AV | 9.297 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 0.000 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 4960.957 | 767.693 | 767.693 | 900.346 |
| AV | 9.843 | 1.523 | 1.523 | 1.786 |

| | 1SMCAHUS ZR SUPPLY ELECTRIC KW ----(49) | 2SPERFC SUPPLY ELECTRIC KW ----(49) | 3SPERFC SUPPLY ELECTRIC KW ----(49) | 4SPERFC SUPPLY ELECTRIC KW ----(49) |
|---|---|---|---|---|
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 0.000 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 3728.234 | 712.858 | 712.858 | 836.035 |
| AV | 7.966 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 0.000 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 3427.570 | 712.858 | 712.858 | 836.035 |
| AV | 7.324 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 0.000 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 3066.773 | 767.693 | 767.693 | 900.346 |
| AV | 6.085 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 0.000 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 1773.918 | 731.136 | 731.136 | 857.472 |
| AV | 3.696 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 0.000 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 1292.855 | 749.415 | 749.415 | 878.909 |
| AV | 2.628 | 1.523 | 1.523 | 1.786 |
| YEARLY SUMMARY | | | | |
| MN | 0.000 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 35959.418 | 8737.077 | 8737.077 | 10246.794 |
| AV | 6.269 | 1.523 | 1.523 | 1.786 |

| MMDDHH | SSZF2MID | SSFZ3MID | SSZF4MID | OSMCAHUS ZR |
|---|---|---|---|---|
| | SUPPLY ELECTRIC KW | SUPPLY ELECTRIC KW | SUPPLY ELECTRIC KW | SUPPLY ELECTRIC KW |
| | ----(49) | ----(49) | ----(49) | ----(49) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 0.000 | 0.000 | 0.000 | 0.000 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 2702.056 | 3539.614 | 4420.291 | 737.587 |
| AV | 5.492 | 7.194 | 8.984 | 1.499 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 0.000 | 0.000 | 0.000 | 0.000 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 2343.376 | 3071.565 | 3123.672 | 667.341 |
| AV | 5.278 | 6.918 | 7.035 | 1.503 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 0.000 | 0.000 | 0.000 | 0.000 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 2725.968 | 3539.613 | 2445.894 | 807.833 |
| AV | 5.825 | 7.563 | 5.226 | 1.726 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 0.000 | 0.000 | 0.000 | 0.000 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 4423.720 | 5558.070 | 4037.198 | 2247.885 |
| AV | 9.452 | 11.876 | 8.626 | 4.803 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 0.000 | 0.000 | 0.000 | 0.000 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 5547.584 | 6815.949 | 7131.401 | 3652.813 |
| AV | 11.276 | 13.854 | 14.495 | 7.424 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 0.000 | 0.000 | 0.000 | 0.000 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 3371.592 | 4153.927 | 7042.997 | 3266.458 |
| AV | 7.394 | 9.109 | 15.445 | 7.163 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 0.000 | 0.000 | 0.000 | 0.000 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 4232.424 | 5177.781 | 8015.459 | 4302.592 |
| AV | 8.398 | 10.273 | 15.904 | 8.537 |

| | SSZF2MID<br>SUPPLY<br>ELECTRIC<br>KW<br>----(49) | SSFZ3MID<br>SUPPLY<br>ELECTRIC<br>KW<br>----(49) | SSZF4MID<br>SUPPLY<br>ELECTRIC<br>KW<br>----(49) | OSMCAHUS<br>ZR<br>SUPPLY<br>ELECTRIC<br>KW<br>----(49) |
|---|---|---|---|---|
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 0.000 | 0.000 | 0.000 | 0.000 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 3610.712 | 4417.204 | 7101.933 | 3810.868 |
| AV | 7.715 | 9.438 | 15.175 | 8.143 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 0.000 | 0.000 | 0.000 | 0.000 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 3419.416 | 4212.433 | 6512.560 | 2950.349 |
| AV | 7.306 | 9.001 | 13.916 | 6.304 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 0.000 | 0.000 | 0.000 | 0.000 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 4495.456 | 5558.070 | 3889.856 | 2897.664 |
| AV | 8.920 | 11.028 | 7.718 | 5.749 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 0.000 | 0.000 | 0.000 | 0.000 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 3610.712 | 4592.721 | 2652.175 | 1229.312 |
| AV | 7.522 | 9.568 | 5.525 | 2.561 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 0.000 | 0.000 | 0.000 | 0.000 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 2654.232 | 3481.108 | 3477.295 | 913.203 |
| AV | 5.395 | 7.075 | 7.068 | 1.856 |
| YEARLY SUMMARY | | | | |
| MN | 0.000 | 0.000 | 0.000 | 0.000 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 43137.242 | 54118.059 | 59850.734 | 27483.906 |
| AV | 7.520 | 9.435 | 10.434 | 4.791 |

| MMDDHH | 1EXTPER | 1EXTPER | 1INTPER | 1INTPER |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | -999.0 | 69.8 | -999.0 | 69.9 |
| MX | 75.0 | 77.6 | 75.0 | 77.7 |
| SM | ******** | 36855.7 | ******** | 36702.7 |
| AV | -907.5 | 74.9 | -907.5 | 74.6 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | -999.0 | 72.6 | -999.0 | 70.7 |
| MX | 75.0 | 78.5 | 75.0 | 77.6 |
| SM | ******** | 33718.5 | ******** | 33416.2 |
| AV | -907.2 | 75.9 | -907.2 | 75.3 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | -999.0 | 74.1 | -999.0 | 73.9 |
| MX | 75.0 | 80.1 | 75.0 | 79.9 |
| SM | ******** | 35946.3 | ******** | 35817.9 |
| AV | -893.4 | 76.8 | -893.4 | 76.5 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | -999.0 | 74.4 | -999.0 | 74.2 |
| MX | 80.0 | 84.7 | 80.0 | 84.4 |
| SM | ******** | 36979.7 | ******** | 36921.3 |
| AV | -711.3 | 79.0 | -711.3 | 78.9 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | -999.0 | 74.7 | -999.0 | 75.1 |
| MX | 80.0 | 96.1 | 80.0 | 96.0 |
| SM | ******** | 39403.2 | ******** | 39635.2 |
| AV | -567.4 | 80.1 | -567.4 | 80.6 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | -999.0 | 74.9 | -999.0 | 75.5 |
| MX | 80.0 | 82.5 | 80.0 | 83.0 |
| SM | ******** | 36183.0 | ******** | 36470.4 |
| AV | -665.8 | 79.3 | -665.8 | 80.0 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | -999.0 | 75.1 | -999.0 | 75.9 |
| MX | 80.0 | 82.7 | 80.0 | 83.0 |
| SM | ******** | 40218.2 | ******** | 40483.0 |
| AV | -646.2 | 79.8 | -646.2 | 80.3 |

| | 1EXTPER | 1EXTPER | 1INTPER | 1INTPER |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (AUG) | | | | |
| MN | -999.0 | 74.9 | -999.0 | 75.5 |
| MX | 80.0 | 82.6 | 80.0 | 82.4 |
| SM | ******** | 37206.3 | ******** | 37386.3 |
| AV | -713.6 | 79.5 | -713.6 | 79.9 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | -999.0 | 74.8 | -999.0 | 74.9 |
| MX | 80.0 | 82.2 | 80.0 | 81.9 |
| SM | ******** | 37055.3 | ******** | 37081.8 |
| AV | -736.6 | 79.2 | -736.6 | 79.2 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | -999.0 | 74.5 | -999.0 | 74.1 |
| MX | 80.0 | 83.9 | 80.0 | 82.3 |
| SM | ******** | 39951.6 | ******** | 39707.9 |
| AV | -781.0 | 79.3 | -781.7 | 78.8 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | -999.0 | 74.1 | -999.0 | 74.0 |
| MX | 80.0 | 83.0 | 80.0 | 83.6 |
| SM | ******** | 37224.9 | ******** | 37056.3 |
| AV | -866.8 | 77.6 | -866.8 | 77.2 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | -999.0 | 72.7 | -999.0 | 71.6 |
| MX | 80.0 | 81.0 | 75.0 | 79.5 |
| SM | ******** | 37427.9 | ******** | 37338.4 |
| AV | -905.2 | 76.1 | -905.2 | 75.9 |
| YEARLY SUMMARY | | | | |
| MN | -999.0 | 69.8 | -999.0 | 69.9 |
| MX | 80.0 | 96.1 | 80.0 | 96.0 |
| SM | ******** | 448170.7 | ******** | 448017.5 |
| AV | -774.5 | 78.1 | -774.6 | 78.1 |

| MMDDHH | 2EXTPER | 2EXTPER | 2INTPER | 2INTPER |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 72.0 | 72.2 | 72.0 | 72.2 |
| MX | 75.0 | 75.5 | 75.0 | 75.6 |
| SM | 35445.0 | 35818.2 | 35472.0 | 35835.6 |
| AV | 72.0 | 72.8 | 72.1 | 72.8 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 72.0 | 72.2 | 72.0 | 72.2 |
| MX | 75.0 | 75.1 | 75.0 | 76.0 |
| SM | 32001.0 | 32337.8 | 32046.0 | 32376.2 |
| AV | 72.1 | 72.8 | 72.2 | 72.9 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 72.0 | 72.5 | 72.0 | 72.5 |
| MX | 75.0 | 79.9 | 75.0 | 80.8 |
| SM | 33906.0 | 34308.4 | 33942.0 | 34389.8 |
| AV | 72.4 | 73.3 | 72.5 | 73.5 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 72.0 | 72.7 | 72.0 | 72.7 |
| MX | 75.0 | 96.9 | 75.0 | 98.5 |
| SM | 34662.0 | 37561.9 | 34665.0 | 37913.2 |
| AV | 74.1 | 80.3 | 74.1 | 81.0 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 72.0 | 67.8 | 72.0 | 67.9 |
| MX | 75.0 | 102.3 | 75.0 | 103.7 |
| SM | 36561.0 | 39161.8 | 36573.0 | 39429.4 |
| AV | 74.3 | 79.6 | 74.3 | 80.1 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 72.0 | 73.5 | 72.0 | 73.5 |
| MX | 75.0 | 75.0 | 75.0 | 75.1 |
| SM | 34161.0 | 33906.2 | 34167.0 | 33916.4 |
| AV | 74.9 | 74.4 | 74.9 | 74.4 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 72.0 | 73.8 | 72.0 | 73.9 |
| MX | 75.0 | 75.0 | 75.0 | 75.0 |
| SM | 37794.0 | 37510.9 | 37794.0 | 37520.6 |
| AV | 75.0 | 74.4 | 75.0 | 74.4 |

| | 2EXTPER | 2EXTPER | 2INTPER | 2INTPER |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 72.0 | 72.8 | 72.0 | 72.8 |
| MX | 75.0 | 74.9 | 75.0 | 75.0 |
| SM | 35019.0 | 34776.7 | 35034.0 | 34791.4 |
| AV | 74.8 | 74.3 | 74.9 | 74.3 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 72.0 | 71.6 | 72.0 | 72.0 |
| MX | 75.0 | 74.6 | 75.0 | 74.7 |
| SM | 34944.0 | 34693.5 | 34968.0 | 34718.0 |
| AV | 74.7 | 74.1 | 74.7 | 74.2 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 72.0 | 67.5 | 72.0 | 68.5 |
| MX | 75.0 | 89.9 | 75.0 | 92.3 |
| SM | 37191.0 | 38152.6 | 37338.0 | 38527.4 |
| AV | 73.8 | 75.7 | 74.1 | 76.4 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 72.0 | 72.6 | 72.0 | 72.6 |
| MX | 75.0 | 90.0 | 75.0 | 90.7 |
| SM | 35124.0 | 36187.5 | 35172.0 | 36425.4 |
| AV | 73.2 | 75.4 | 73.3 | 75.9 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 72.0 | 72.5 | 72.0 | 72.5 |
| MX | 75.0 | 79.3 | 75.0 | 80.5 |
| SM | 35547.0 | 35932.1 | 35568.0 | 35995.9 |
| AV | 72.3 | 73.0 | 72.3 | 73.2 |
| YEARLY SUMMARY | | | | |
| MN | 72.0 | 67.5 | 72.0 | 67.9 |
| MX | 75.0 | 102.3 | 75.0 | 103.7 |
| SM | 422355.0 | 430347.5 | 422739.0 | 431839.3 |
| AV | 73.6 | 75.0 | 73.7 | 75.3 |

| MMDDHH | 3EXTPER | 3EXTPER | 3INTPER | 3INTPER |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 72.0 | 72.2 | 72.0 | 72.2 |
| MX | 75.0 | 75.5 | 75.0 | 75.6 |
| SM | 35445.0 | 35818.2 | 35472.0 | 35835.6 |
| AV | 72.0 | 72.8 | 72.1 | 72.8 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 72.0 | 72.2 | 72.0 | 72.2 |
| MX | 75.0 | 75.1 | 75.0 | 76.0 |
| SM | 32001.0 | 32337.8 | 32046.0 | 32376.2 |
| AV | 72.1 | 72.8 | 72.2 | 72.9 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 72.0 | 72.5 | 72.0 | 72.5 |
| MX | 75.0 | 79.9 | 75.0 | 80.8 |
| SM | 33906.0 | 34308.3 | 33942.0 | 34389.8 |
| AV | 72.4 | 73.3 | 72.5 | 73.5 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 72.0 | 72.7 | 72.0 | 72.7 |
| MX | 75.0 | 96.9 | 75.0 | 98.5 |
| SM | 34662.0 | 37561.8 | 34665.0 | 37913.2 |
| AV | 74.1 | 80.3 | 74.1 | 81.0 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 72.0 | 67.8 | 72.0 | 67.9 |
| MX | 75.0 | 102.3 | 75.0 | 103.7 |
| SM | 36561.0 | 39161.9 | 36573.0 | 39429.4 |
| AV | 74.3 | 79.6 | 74.3 | 80.1 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 72.0 | 73.5 | 72.0 | 73.5 |
| MX | 75.0 | 75.0 | 75.0 | 75.1 |
| SM | 34161.0 | 33906.2 | 34167.0 | 33916.4 |
| AV | 74.9 | 74.4 | 74.9 | 74.4 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 72.0 | 73.8 | 72.0 | 73.9 |
| MX | 75.0 | 75.0 | 75.0 | 75.0 |
| SM | 37794.0 | 37510.9 | 37794.0 | 37520.6 |
| AV | 75.0 | 74.4 | 75.0 | 74.4 |

| | 3EXTPER THERMOST SETPOINT F ----( 7) | 3EXTPER ZONE TEMP F ----( 6) | 3INTPER THERMOST SETPOINT F ----( 7) | 3INTPER ZONE TEMP F ----( 6) |
|---|---|---|---|---|
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 72.0 | 72.8 | 72.0 | 72.8 |
| MX | 75.0 | 74.9 | 75.0 | 75.0 |
| SM | 35019.0 | 34776.7 | 35034.0 | 34791.4 |
| AV | 74.8 | 74.3 | 74.9 | 74.3 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 72.0 | 71.6 | 72.0 | 72.0 |
| MX | 75.0 | 74.6 | 75.0 | 74.7 |
| SM | 34944.0 | 34693.5 | 34968.0 | 34718.0 |
| AV | 74.7 | 74.1 | 74.7 | 74.2 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 72.0 | 67.5 | 72.0 | 68.5 |
| MX | 75.0 | 89.9 | 75.0 | 92.3 |
| SM | 37191.0 | 38152.5 | 37338.0 | 38527.4 |
| AV | 73.8 | 75.7 | 74.1 | 76.4 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 72.0 | 72.6 | 72.0 | 72.6 |
| MX | 75.0 | 90.0 | 75.0 | 90.7 |
| SM | 35124.0 | 36187.2 | 35172.0 | 36425.4 |
| AV | 73.2 | 75.4 | 73.3 | 75.9 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 72.0 | 72.5 | 72.0 | 72.5 |
| MX | 75.0 | 79.3 | 75.0 | 80.5 |
| SM | 35547.0 | 35932.0 | 35568.0 | 35995.9 |
| AV | 72.3 | 73.0 | 72.3 | 73.2 |
| YEARLY SUMMARY | | | | |
| MN | 72.0 | 67.5 | 72.0 | 67.9 |
| MX | 75.0 | 102.3 | 75.0 | 103.7 |
| SM | 422355.0 | 430347.1 | 422739.0 | 431839.3 |
| AV | 73.6 | 75.0 | 73.7 | 75.3 |

| MMDDHH | 4EXTPER | 4EXTPER | 4INTPER | 4INTPER |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 72.0 | 72.1 | 72.0 | 72.2 |
| MX | 72.0 | 72.9 | 72.0 | 73.0 |
| SM | 35424.0 | 35761.0 | 35424.0 | 35763.6 |
| AV | 72.0 | 72.7 | 72.0 | 72.7 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 72.0 | 72.2 | 72.0 | 72.2 |
| MX | 72.0 | 73.5 | 72.0 | 73.9 |
| SM | 31968.0 | 32276.7 | 31968.0 | 32282.9 |
| AV | 72.0 | 72.7 | 72.0 | 72.7 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 72.0 | 72.5 | 72.0 | 72.5 |
| MX | 75.0 | 76.8 | 75.0 | 77.3 |
| SM | 33738.0 | 34102.0 | 33753.0 | 34123.1 |
| AV | 72.1 | 72.9 | 72.1 | 72.9 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 72.0 | 72.6 | 72.0 | 72.6 |
| MX | 75.0 | 90.4 | 75.0 | 91.4 |
| SM | 34434.0 | 35745.0 | 34461.0 | 35950.4 |
| AV | 73.6 | 76.4 | 73.6 | 76.8 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 72.0 | 64.0 | 72.0 | 64.3 |
| MX | 75.0 | 98.4 | 75.0 | 99.5 |
| SM | 36351.0 | 37680.9 | 36384.0 | 37852.7 |
| AV | 73.9 | 76.6 | 74.0 | 76.9 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 72.0 | 72.3 | 72.0 | 72.3 |
| MX | 75.0 | 75.0 | 75.0 | 75.1 |
| SM | 34017.0 | 33852.2 | 34050.0 | 33866.7 |
| AV | 74.6 | 74.2 | 74.7 | 74.3 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 72.0 | 73.1 | 72.0 | 73.2 |
| MX | 75.0 | 75.0 | 75.0 | 75.1 |
| SM | 37767.0 | 37490.9 | 37770.0 | 37501.8 |
| AV | 74.9 | 74.4 | 74.9 | 74.4 |

| | 4EXTPER | 4EXTPER | 4INTPER | 4INTPER |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| **MONTHLY SUMMARY (AUG)** | | | | |
| MN | 72.0 | 71.2 | 72.0 | 71.4 |
| MX | 75.0 | 74.9 | 75.0 | 75.0 |
| SM | 34881.0 | 34701.0 | 34905.0 | 34721.1 |
| AV | 74.5 | 74.1 | 74.6 | 74.2 |
| **MONTHLY SUMMARY (SEP)** | | | | |
| MN | 72.0 | 69.5 | 72.0 | 69.9 |
| MX | 75.0 | 74.7 | 75.0 | 74.8 |
| SM | 34650.0 | 34547.6 | 34698.0 | 34589.0 |
| AV | 74.0 | 73.8 | 74.1 | 73.9 |
| **MONTHLY SUMMARY (OCT)** | | | | |
| MN | 72.0 | 62.5 | 72.0 | 63.5 |
| MX | 75.0 | 82.6 | 75.0 | 83.8 |
| SM | 36774.0 | 36757.6 | 36882.0 | 37036.8 |
| AV | 73.0 | 72.9 | 73.2 | 73.5 |
| **MONTHLY SUMMARY (NOV)** | | | | |
| MN | 72.0 | 72.6 | 72.0 | 72.5 |
| MX | 75.0 | 84.9 | 75.0 | 85.3 |
| SM | 34740.0 | 35345.7 | 34764.0 | 35386.3 |
| AV | 72.4 | 73.6 | 72.4 | 73.7 |
| **MONTHLY SUMMARY (DEC)** | | | | |
| MN | 72.0 | 72.5 | 72.0 | 72.5 |
| MX | 75.0 | 76.0 | 75.0 | 76.7 |
| SM | 35448.0 | 35790.5 | 35460.0 | 35803.4 |
| AV | 72.0 | 72.7 | 72.1 | 72.8 |
| **YEARLY SUMMARY** | | | | |
| MN | 72.0 | 62.5 | 72.0 | 63.5 |
| MX | 75.0 | 98.4 | 75.0 | 99.5 |
| SM | 420192.0 | 424051.1 | 420519.0 | 424877.6 |
| AV | 73.3 | 73.9 | 73.3 | 74.1 |

| MMDDHH | 2MIDL THERMOST SETPOINT F ----( 7) | 2MIDL ZONE TEMP F ----( 6) | 3MIDL THERMOST SETPOINT F ----( 7) | 3MIDL ZONE TEMP F ----( 6) |
|---|---|---|---|---|
| MONTHLY SUMMARY (JAN) | | | | |
| MN | -999.0 | 74.7 | -999.0 | 74.8 |
| MX | 80.0 | 81.2 | 80.0 | 81.2 |
| SM | ******** | 38946.3 | ******** | 38976.9 |
| AV | -751.6 | 79.2 | -734.1 | 79.2 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | -999.0 | 74.9 | -999.0 | 74.9 |
| MX | 80.0 | 81.2 | 80.0 | 81.2 |
| SM | ******** | 35156.7 | ******** | 35181.8 |
| AV | -761.5 | 79.2 | -744.4 | 79.2 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | -999.0 | 74.9 | -999.0 | 75.0 |
| MX | 80.0 | 81.6 | 80.0 | 81.6 |
| SM | ******** | 37064.1 | ******** | 37082.3 |
| AV | -736.7 | 79.2 | -720.5 | 79.2 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | -999.0 | 75.1 | -999.0 | 75.1 |
| MX | 80.0 | 85.7 | 80.0 | 85.7 |
| SM | ******** | 37451.0 | ******** | 37460.7 |
| AV | -572.9 | 80.0 | -561.4 | 80.0 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | -999.0 | 75.1 | -999.0 | 75.2 |
| MX | 80.0 | 97.1 | 80.0 | 97.1 |
| SM | ******** | 39786.8 | ******** | 39796.0 |
| AV | -490.6 | 80.9 | -488.4 | 80.9 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | -999.0 | 75.3 | -999.0 | 75.3 |
| MX | 80.0 | 82.0 | 80.0 | 82.0 |
| SM | ******** | 36459.3 | ******** | 36458.3 |
| AV | -665.8 | 80.0 | -663.5 | 80.0 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | -999.0 | 75.4 | -999.0 | 75.4 |
| MX | 80.0 | 82.2 | 80.0 | 82.1 |
| SM | ******** | 40401.7 | ******** | 40399.1 |
| AV | -620.5 | 80.2 | -620.5 | 80.2 |

| | 2MIDL | 2MIDL | 3MIDL | 3MIDL |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (AUG) | | | | |
| MN | -999.0 | 75.3 | -999.0 | 75.3 |
| MX | 80.0 | 82.0 | 80.0 | 82.0 |
| SM | ******** | 37415.9 | ******** | 37419.0 |
| AV | -651.4 | 79.9 | -651.4 | 80.0 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | -999.0 | 75.2 | -999.0 | 75.2 |
| MX | 80.0 | 81.9 | 80.0 | 81.9 |
| SM | ******** | 37350.1 | ******** | 37360.1 |
| AV | -669.8 | 79.8 | -667.4 | 79.8 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | -999.0 | 75.1 | -999.0 | 75.1 |
| MX | 80.0 | 83.8 | 80.0 | 83.9 |
| SM | ******** | 40268.3 | ******** | 40288.4 |
| AV | -596.9 | 79.9 | -592.6 | 79.9 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | -999.0 | 74.9 | -999.0 | 75.0 |
| MX | 80.0 | 85.0 | 80.0 | 85.1 |
| SM | ******** | 38220.5 | ******** | 38242.4 |
| AV | -660.0 | 79.6 | -646.5 | 79.7 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | -999.0 | 74.8 | -999.0 | 74.8 |
| MX | 80.0 | 81.4 | 80.0 | 81.4 |
| SM | ******** | 38965.3 | ******** | 38994.3 |
| AV | -756.0 | 79.2 | -738.4 | 79.3 |
| YEARLY SUMMARY | | | | |
| MN | -999.0 | 74.7 | -999.0 | 74.8 |
| MX | 80.0 | 97.1 | 80.0 | 97.1 |
| SM | ******** | 457486.1 | ******** | 457659.3 |
| AV | -660.1 | 79.8 | -651.4 | 79.8 |

| MMDDHH | 4MIDL THERMOST SETPOINT F | 4MIDL ZONE TEMP F | OINTEXTPER THERMOST SETPOINT F | OINTEXTPER ZONE TEMP F |
|---|---|---|---|---|
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | -999.0 | 69.1 | -999.0 | 69.6 |
| MX | 72.0 | 75.3 | 75.0 | 79.0 |
| SM | ******** | 35465.8 | ******** | 36327.0 |
| AV | -672.5 | 72.1 | -907.6 | 73.8 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | -999.0 | 68.7 | -999.0 | 69.7 |
| MX | 75.0 | 75.3 | 75.0 | 79.6 |
| SM | ******** | 32080.3 | ******** | 33099.5 |
| AV | -743.3 | 72.3 | -907.3 | 74.5 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | -999.0 | 70.4 | -999.0 | 72.9 |
| MX | 75.0 | 77.4 | 75.0 | 79.6 |
| SM | ******** | 34170.5 | ******** | 35655.5 |
| AV | -809.0 | 73.0 | -893.5 | 76.2 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | -999.0 | 71.7 | -999.0 | 74.1 |
| MX | 75.0 | 80.7 | 80.0 | 85.6 |
| SM | ******** | 35104.3 | ******** | 37031.0 |
| AV | -684.7 | 75.0 | -704.3 | 79.1 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | -999.0 | 73.3 | -999.0 | 74.5 |
| MX | 75.0 | 93.6 | 80.0 | 98.0 |
| SM | ******** | 37662.0 | ******** | 39842.6 |
| AV | -470.7 | 76.5 | -543.3 | 81.0 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | -999.0 | 74.3 | -999.0 | 74.9 |
| MX | 75.0 | 79.5 | 80.0 | 86.3 |
| SM | ******** | 34644.7 | ******** | 36727.8 |
| AV | -436.1 | 76.0 | -559.4 | 80.5 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | -999.0 | 74.4 | -999.0 | 75.1 |
| MX | 75.0 | 79.5 | 80.0 | 87.0 |
| SM | ******** | 38382.7 | ******** | 40806.6 |
| AV | -419.4 | 76.2 | -474.9 | 81.0 |

| | 4MIDL THERMOST SETPOINT F ----( 7) | 4MIDL ZONE TEMP F ----( 6) | OINTEXTPER THERMOST SETPOINT F ----( 7) | OINTEXTPER ZONE TEMP F ----( 6) |
|---|---|---|---|---|
| MONTHLY SUMMARY (AUG) | | | | |
| MN | -999.0 | 74.3 | -999.0 | 75.0 |
| MX | 75.0 | 79.1 | 80.0 | 87.0 |
| SM | ******** | 35527.9 | ******** | 37666.4 |
| AV | -445.9 | 75.9 | -499.2 | 80.5 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | -999.0 | 74.0 | -999.0 | 74.8 |
| MX | 75.0 | 78.8 | 80.0 | 85.9 |
| SM | ******** | 35388.4 | ******** | 37624.8 |
| AV | -491.8 | 75.6 | -612.1 | 80.4 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | -999.0 | 71.5 | -999.0 | 74.5 |
| MX | 75.0 | 80.1 | 80.0 | 87.3 |
| SM | ******** | 37973.8 | ******** | 40213.3 |
| AV | -717.8 | 75.3 | -646.2 | 79.8 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | -999.0 | 70.4 | -999.0 | 73.0 |
| MX | 75.0 | 80.3 | 80.0 | 85.0 |
| SM | ******** | 35265.7 | ******** | 37389.3 |
| AV | -798.0 | 73.5 | -842.1 | 77.9 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | -999.0 | 69.5 | -999.0 | 71.9 |
| MX | 75.0 | 76.3 | 80.0 | 81.9 |
| SM | ******** | 35725.7 | ******** | 37041.3 |
| AV | -742.1 | 72.6 | -885.6 | 75.3 |
| YEARLY SUMMARY | | | | |
| MN | -999.0 | 68.7 | -999.0 | 69.6 |
| MX | 75.0 | 93.6 | 80.0 | 98.0 |
| SM | ******** | 427391.5 | ******** | 449424.8 |
| AV | -619.0 | 74.5 | -705.1 | 78.4 |

| E Q U I P M E N T | SIZE (MBTU/H) | NUMBER INSTD | AVAIL | SIZE (MBTU/H) | NUMBER INSTD | AVAIL | SIZE (MBTU/H) | NUMBER INSTD | AVAIL | SIZE (MBTU/H) | NUMBER INSTD | AVAIL | SIZE (MBTU/H) | NUMBER INSTD | AVAIL | SIZE (MBTU/H) | NUMBER INSTD | AVAIL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 4.101 | 1 | 1 | | | | | | | | | | | | | | | |
| HERM-CENT-CHLR | 7.800 | 1 | 1 | | | | | | | | | | | | | | | |
| COOLING-TWR | 2.379 | 4 | 4 | | | | | | | | | | | | | | | |

REPORT- PS-C EQUIPMENT PART LOAD OPERATION WEATHER FILE- NEWARK, NJ

| EQUIPMENT | HOURS AT PERCENT PART LOAD RATIO 0 -- 10 | -- 20 | -- 30 | -- 40 | -- 50 | -- 60 | -- 70 | -- 80 | -- 90 | -- 100 | - 110+ | TOTAL HOURS | ANNUAL LOAD (MBTU) | FALSE LOAD (MBTU) | ELEC USED (MBTU) | THERMAL USED (MBTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 2827 | 616 | 634 | 478 | 311 | 139 | 41 | 28 | 9 | 4 | 1 | 5088 | 3096.9 | 0.0 | 202.4 | 4504.8 |
| | 2827 | 616 | 634 | 478 | 311 | 139 | 41 | 28 | 9 | 4 | 1 | | | | | |
| HERM-CENT-CHLR | 1286 | 825 | 408 | 207 | 244 | 352 | 266 | 81 | 3 | 0 | 0 | 3672 | 8366.2 | 0.0 | 1972.7 | 0.0 |
| | 1286 | 825 | 408 | 207 | 244 | 352 | 266 | 81 | 3 | 0 | 0 | | | | | |
| COOLING-TWR | 1660 | 651 | 227 | 116 | 89 | 77 | 68 | 102 | 125 | 115 | 442 | 3672 | 10338.9 | 0.0 | 807.7 | 0.0 |
| | 1660 | 651 | 227 | 116 | 89 | 77 | 68 | 102 | 125 | 115 | 442 | | | | | |

HOT LOOP CIRCULATION PUMP ELECTRICAL USE = 154.2 MBTU
COLD LOOP CIRCULATION PUMP ELECTRICAL USE = 993.6 MBTU

NOTES TO TABLE

1) THE FIRST PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE HOURLY OPERATING CAPACITY

2) THE SECOND PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE TOTAL INSTALLED CAPACITY

| HEATING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HW-BOILER | 3096.9 | 100.0 |
| LOAD SATISFIED | 3096.9 | 100.0 |
| TOTAL LOAD ON PLANT | 3096.9 | |

| COOLING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HERM-CENT-CHLR | 8366.2 | 100.0 |
| LOAD SATISFIED | 8366.2 | 100.0 |
| TOTAL LOAD ON PLANT | 8366.2 | |

| ELECTRICAL LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| ELECTRICITY | 21337.4 | 100.0 |
| LOAD SATISFIED | 21337.4 | 100.0 |
| TOTAL LOAD ON PLANT | 21337.3 | |

TOWER ABOVE DESIGN TEMPERATURE OF 85.F 1 HOURS
MAXIMUM TOWER EXIT TEMPERATURE = 86.F

SUMMARY OF LOADS MET

| TYPE OF LOAD | TOTAL LOAD (MBTU) | LOAD SATISFIED (MBTU) | TOTAL OVERLOAD (MBTU) | PEAK OVERLOAD (MBTU) | HOURS OVERLOADED |
|---|---|---|---|---|---|
| HEATING LOADS | 3096.9 | 3096.9 | 0.000 | 0.000 | 0 |
| COOLING LOADS | 8366.2 | 8366.2 | 0.000 | 0.000 | 0 |
| ELECTRICAL LOADS | 21337.3 | 21337.4 | 0.000 | 0.000 | 0 |

REPORT- PS-H EQUIPMENT USE STATISTICS WEATHER FILE- NEWARK, NJ

| E Q U I P M E N T | AVG OPER RATIO | MAX LOAD (MBTU) | MON | DAY | HR | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 0.148 | 4.101 | 2 | 20 | 3 | 4.101 | 5088 | | | | | | | | |
| HERM-CENT-CHLR | 0.292 | 7.613 | 6 | 13 | 15 | 7.800 | 3672 | | | | | | | | |
| COOLING-TWR | 0.296 | 9.214 | 6 | 13 | 15 | 2.379 | 14688 | | | | | | | | |

REPORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE WEATHER FILE- NEWARK, NJ

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|---|---|---|
| CATEGORY OF USE | | |
| SPACE HEAT | 202.45 | 4504.78 |
| SPACE COOL | 2780.41 | 0.00 |
| HVAC AUX | 3574.63 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 10258.50 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 4521.37 | 0.00 |
| TOTAL | 21337.36 | 4504.78 |

| | | | |
|---|---|---|---|
| TOTAL SITE ENERGY | 25842.22 MBTU | 78.4 KBTU/SQFT-YR GROSS-AREA | 78.4 KBTU/SQFT-YR NET-AREA |
| TOTAL SOURCE ENERGY | 68581.08 MBTU | 208.1 KBTU/SQFT-YR GROSS-AREA | 208.1 KBTU/SQFT-YR NET-AREA |

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 10.1
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

| MMDDHH | HERM-CEN T-CHLR LOAD BTU/HR ----( 1) | HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----( 3) | HERM-CEN T-CHLR ENTERING COND TEM F ----(12) | HERM-CEN T-CHLR LEAVING COLD TEM F ----(13) | COOLING-TWR WATER FLOWRATE GAL/MIN ----( 8) | COOLING-TWR RANGE R ----(10) | COOLING-TWR FAN ELEC BTU/HR ----(20) | COOLING-TWR PUMP ELEC BTU/HR ----(21) |
|---|---|---|---|---|---|---|---|---|
| MONTHLY SUMMARY (JAN) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (FEB) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (MAR) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (APR) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (MAY) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 4487600. | 838479. | 77.3 | 55.3 | 1950.0 | 5.5 | 140410. | 90465. |
| SM | 169750432. | 65228444. | 16614.1 | 13603.2 | 491400.0 | 261.8 | 28844272. | 22797268. |
| AV | 345021. | 132578. | 33.8 | 27.6 | 998.8 | 0.5 | 58627. | 46336. |
| MONTHLY SUMMARY (JUN) | | | | | | | | |
| MN | 316498. | 149259. | 65.0 | 53.9 | 1950.0 | 0.6 | 106748. | 90465. |
| MX | 4448608. | 852782. | 80.0 | 55.3 | 1950.0 | 5.5 | 140410. | 90465. |
| SM | 581556736. | 179042656. | 31407.7 | 24709.3 | 889200.1 | 817.5 | 58399344. | 41252200. |
| AV | 1275344. | 392637. | 68.9 | 54.2 | 1950.0 | 1.8 | 128069. | 90465. |
| MONTHLY SUMMARY (JUL) | | | | | | | | |
| MN | 316498. | 149259. | 65.0 | 53.9 | 1950.0 | 0.6 | 113014. | 90465. |
| MX | 4115743. | 783141. | 79.6 | 55.2 | 1950.0 | 5.1 | 140410. | 90465. |
| SM | 783858752. | 223227600. | 35653.1 | 27358.6 | 982800.1 | 1074.1 | 66740936. | 45594536. |
| AV | 1555275. | 442912. | 70.7 | 54.3 | 1950.0 | 2.1 | 132422. | 90465. |

| | HERM-CEN T-CHLR LOAD BTU/HR ----( 1) | HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----( 3) | HERM-CEN T-CHLR ENTERING COND TEM F ----(12) | HERM-CEN T-CHLR LEAVING COLD TEM F ----(13) | COOLING-TWR WATER FLOWRATE GAL/MIN ----( 8) | COOLING-TWR RANGE R ----(10) | COOLING-TWR FAN ELEC BTU/HR ----(20) | COOLING-TWR PUMP ELEC BTU/HR ----(21) |
|---|---|---|---|---|---|---|---|---|
| MONTHLY SUMMARY (AUG) | | | | | | | | |
| MN | 316498. | 149259. | 64.9 | 53.9 | 1950.0 | 0.6 | 107897. | 90465. |
| MX | 4499745. | 878697. | 83.6 | 55.3 | 1950.0 | 5.6 | 140410. | 90465. |
| SM | 598733184. | 186173856. | 33142.3 | 25360.1 | 912600.1 | 843.4 | 60455884. | 42337780. |
| AV | 1279344. | 397807. | 70.8 | 54.2 | 1950.0 | 1.8 | 129179. | 90465. |
| MONTHLY SUMMARY (SEP) | | | | | | | | |
| MN | 316498. | 149259. | 65.0 | 53.9 | 1950.0 | 0.6 | 106748. | 90465. |
| MX | 3866649. | 757026. | 78.0 | 55.1 | 1950.0 | 4.8 | 140410. | 90465. |
| SM | 416302656. | 150314016. | 32075.6 | 25297.6 | 912600.1 | 619.7 | 57864784. | 42337784. |
| AV | 889536. | 321184. | 68.5 | 54.1 | 1950.0 | 1.3 | 123643. | 90465. |
| MONTHLY SUMMARY (OCT) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 2677554. | 567950. | 70.1 | 54.7 | 1950.0 | 3.4 | 140410. | 90465. |
| SM | 111269232. | 48921036. | 16451.1 | 13583.1 | 491400.0 | 185.2 | 28117416. | 22797272. |
| AV | 220772. | 97066. | 32.6 | 27.0 | 975.0 | 0.4 | 55789. | 45233. |
| MONTHLY SUMMARY (NOV) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (DEC) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| YEARLY SUMMARY | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 4499745. | 878697. | 83.6 | 55.3 | 1950.0 | 5.6 | 140410. | 90465. |
| SM | 2661470976. | 852907584. | 165343.9 | 129911.9 | 4680000.5 | 3801.9 | 300422624. | 217116832. |
| AV | 463994. | 148694. | 28.8 | 22.6 | 815.9 | 0.7 | 52375. | 37852. |

| MMDDHH | HW-BOILER LOAD BTU/HR ----( 1) | HW-BOILER ELECTRIC USE BTU/HR ----( 3) | HW-BOILER FUEL USE BTU/HR ----( 4) | HW-BOILER CAPACITY RUNNING BTU/HR ----( 7) |
|---|---|---|---|---|
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 149887. | 13190. | 235139. | 4100792. |
| MX | 3799679. | 90217. | 4616031. | 4100792. |
| SM | 679282560. | 38912236. | 959069696. | 2017589120. |
| AV | 1380656. | 79090. | 1949329. | 4100791. |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 13589. | 1196. | 21318. | 4100792. |
| MX | 4100792. | 90217. | 4920951. | 4100792. |
| SM | 590047680. | 33164520. | 830094208. | 1820750976. |
| AV | 1328936. | 74695. | 1869582. | 4100791. |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 13589. | 1196. | 21318. | 4100792. |
| MX | 2232132. | 90217. | 2960639. | 4100792. |
| SM | 392289056. | 28610828. | 586235520. | 1919170048. |
| AV | 838225. | 61134. | 1252640. | 4100791. |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 13589. | 1196. | 21318. | 4100792. |
| MX | 1720228. | 90217. | 2395328. | 4100792. |
| SM | 122128672. | 9965951. | 187781088. | 1919170304. |
| AV | 260959. | 21295. | 401242. | 4100791. |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 292716. | 25759. | 459205. | 4100792. |
| SM | 13872808. | 1220807. | 21763304. | 984189952. |
| AV | 28197. | 2481. | 44234. | 2000386. |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |

| | HW-BOILER LOAD BTU/HR ----( 1) | HW-BOILER ELECTRIC USE BTU/HR ----( 3) | HW-BOILER FUEL USE BTU/HR ----( 4) | HW-BOILER CAPACITY RUNNING BTU/HR ----( 7) |
|---|---|---|---|---|
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 790137. | 69532. | 1239547. | 4100792. |
| SM | 23044680. | 2027932. | 36151900. | 1033399424. |
| AV | 45724. | 4024. | 71730. | 2050396. |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 13589. | 1196. | 21318. | 4100792. |
| MX | 2289986. | 90217. | 3023764. | 4100792. |
| SM | 269184288. | 20775456. | 407937696. | 1968379776. |
| AV | 560801. | 43282. | 849870. | 4100791. |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 13589. | 1196. | 21318. | 4100792. |
| MX | 2651084. | 90217. | 3414244. | 4100792. |
| SM | 615147904. | 37391884. | 881645376. | 2017588992. |
| AV | 1250301. | 76000. | 1791962. | 4100791. |
| YEARLY SUMMARY | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 4100792. | 90217. | 4920951. | 4100792. |
| SM | 2704997376. | 172069616. | 3910678784. | 13680238592. |
| AV | 471583. | 29998. | 681778. | 2384979. |

REPORT- EV-B COST OF FUELS AND UTILITIES

| ENERGY SOURCE | ENERGY UNIT (BTU) | UNIFORM COST /UNIT ($) | COST ESCLA-ATION RATE | MIN MNTHLY CHARGE ($) | RATE LIMIT /UNIT ($) | FIXED MNTHLY CHARG1 ($) | FIXED MNTHLY CHARG2 ($) | ASSIGN-SCHEDULE (U-NAME) | ASSIGN-CHARGE1 (U-NAME) | ASSIGN-CHARGE2 (U-NAME) |
|---|---|---|---|---|---|---|---|---|---|---|
| ELECTRIC | 3413.00 | 0.0000 | 5.000 | 0.00 | 1000000.000 | 0.00 | 0.00 | YELEC1 | | |
| FUEL-OIL | 138690.00 | 0.5900 | 5.000 | 0.00 | 1000000.000 | 0.00 | 0.00 | | | |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/26/1996 14:53: 7 EDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1

REPORT- ES-D SUMMARY OF FUEL AND UTILITY USE AND COSTS

| MONTH | ELECTRIC UNIT= 3413.00 | FUEL-OIL UNIT= 138690.00 |
|---|---|---|
| JAN | | |
| ENERGY CONSUMPTION (UNIT/MO) | 437963. | 8353. |
| PEAK DEMAND (UNIT/HR) | 1457. | 33. |
| TOTAL COST ($) | 43972.25 | 4928.39 |
| FEB | | |
| ENERGY CONSUMPTION (UNIT/MO) | 393296. | 6604. |
| PEAK DEMAND (UNIT/HR) | 1457. | 35. |
| TOTAL COST ($) | 40760.73 | 3896.21 |
| MAR | | |
| ENERGY CONSUMPTION (UNIT/MO) | 455580. | 4791. |
| PEAK DEMAND (UNIT/HR) | 1457. | 21. |
| TOTAL COST ($) | 45238.93 | 2826.42 |
| APR | | |
| ENERGY CONSUMPTION (UNIT/MO) | 429387. | 1519. |
| PEAK DEMAND (UNIT/HR) | 1449. | 17. |
| TOTAL COST ($) | 43288.15 | 896.48 |
| MAY | | |
| ENERGY CONSUMPTION (UNIT/MO) | 536732. | 198. |
| PEAK DEMAND (UNIT/HR) | 1943. | 3. |
| TOTAL COST ($) | 55242.44 | 116.83 |
| JUN | | |
| ENERGY CONSUMPTION (UNIT/MO) | 664362. | 0. |
| PEAK DEMAND (UNIT/HR) | 2022. | 0. |
| TOTAL COST ($) | 70361.52 | 0.00 |
| JUL | | |
| ENERGY CONSUMPTION (UNIT/MO) | 666001. | 0. |
| PEAK DEMAND (UNIT/HR) | 2008. | 0. |
| TOTAL COST ($) | 70081.58 | 0.00 |
| AUG | | |
| ENERGY CONSUMPTION (UNIT/MO) | 697341. | 0. |
| PEAK DEMAND (UNIT/HR) | 2009. | 0. |
| TOTAL COST ($) | 72822.00 | 0.00 |
| SEP | | |
| ENERGY CONSUMPTION (UNIT/MO) | 623481. | 0. |
| PEAK DEMAND (UNIT/HR) | 1951. | 0. |
| TOTAL COST ($) | 66476.63 | 0.00 |
| OCT | | |
| ENERGY CONSUMPTION (UNIT/MO) | 496446. | 310. |
| PEAK DEMAND (UNIT/HR) | 1848. | 9. |
| TOTAL COST ($) | 51533.05 | 183.03 |
| NOV | | |
| ENERGY CONSUMPTION (UNIT/MO) | 414840. | 3269. |
| PEAK DEMAND (UNIT/HR) | 1457. | 22. |
| TOTAL COST ($) | 42309.72 | 1928.80 |
| DEC | | |
| ENERGY CONSUMPTION (UNIT/MO) | 436376. | 7437. |
| PEAK DEMAND (UNIT/HR) | 1457. | 25. |
| TOTAL COST ($) | 43858.15 | 4387.78 |
| TOTAL | | |
| ENERGY CONSUMPTION (UNIT/YR) | 6251806. | 32481. |
| PEAK DEMAND (UNIT/HR) | 2022. | 35. |
| TOTAL COST ($) | 645945.13 | 19163.94 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/26/1996 14:53: 7 EDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

| MONTH | CHARGE-ASSIGNMENT (U-NAME) | LENGTH (HR/MO) | CONSUMPTION BY C-A (KWH) | ENERGY CHARGE ($) | MEASURED DEMAND (KW) | BILLING DEMAND (KW) | DEMAND CHARGE ($) | TOTAL CHARGES ($) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| | 4OFPKKWH | 744 | 437963. | 31489.53 | 1457. | 1457. | 0.00 | |
| | EONPKDMHTG | 252 | 298671. | 0.00 | 1457. | 1457. | 12482.72 | |
| | | | | | | | | 43972.25 |
| FEB | | | | | | | | |
| | 4OFPKKWH | 672 | 393296. | 28278.01 | 1457. | 1457. | 0.00 | |
| | EONPKDMHTG | 228 | 269225. | 0.00 | 1457. | 1457. | 12482.72 | |
| | | | | | | | | 40760.73 |
| MAR | | | | | | | | |
| | 4OFPKKWH | 744 | 455580. | 32756.21 | 1457. | 1457. | 0.00 | |
| | EONPKDMHTG | 276 | 325452. | 0.00 | 1457. | 1457. | 12482.72 | |
| | | | | | | | | 45238.93 |
| APR | | | | | | | | |
| | 4OFPKKWH | 720 | 429387. | 30872.93 | 1449. | 1449. | 0.00 | |
| | EONPKDMHTG | 252 | 296413. | 0.00 | 1449. | 1449. | 12415.23 | |
| | | | | | | | | 43288.15 |
| MAY | | | | | | | | |
| | 4OFPKKWH | 744 | 536732. | 38591.05 | 1943. | 1943. | 0.00 | |
| | EONPKDMHTG | 252 | 340085. | 0.00 | 1943. | 1943. | 16651.39 | |
| | | | | | | | | 55242.44 |
| JUN | | | | | | | | |
| | 4OFPKKWH | 456 | 243672. | 17520.00 | 1144. | 1144. | 0.00 | |
| | EONPKDMCL | 264 | 420690. | 0.00 | 2022. | 2022. | 19144.21 | |
| | EONPKKWH | 264 | 420690. | 33697.30 | 2022. | 2022. | 0.00 | |
| | | | | | | | | 70361.52 |
| JUL | | | | | | | | |
| | 4OFPKKWH | 504 | 277917. | 19982.25 | 1123. | 1123. | 0.00 | |
| | EONPKDMCL | 240 | 388083. | 0.00 | 2008. | 2008. | 19013.84 | |
| | EONPKKWH | 240 | 388083. | 31085.49 | 2008. | 2008. | 0.00 | |
| | | | | | | | | 70081.58 |
| AUG | | | | | | | | |
| | 4OFPKKWH | 468 | 251131. | 18056.33 | 1151. | 1151. | 0.00 | |
| | EONPKDMCL | 276 | 446210. | 0.00 | 2009. | 2009. | 19024.27 | |
| | EONPKKWH | 276 | 446210. | 35741.40 | 2009. | 2009. | 0.00 | |
| | | | | | | | | 72822.00 |
| SEP | | | | | | | | |
| | 4OFPKKWH | 468 | 236900. | 17033.13 | 1116. | 1116. | 0.00 | |
| | EONPKDMCL | 252 | 386581. | 0.00 | 1951. | 1951. | 18478.37 | |
| | EONPKKWH | 252 | 386581. | 30965.12 | 1951. | 1951. | 0.00 | |
| | | | | | | | | 66476.63 |
| OCT | | | | | | | | |
| | 4OFPKKWH | 744 | 496446. | 35694.44 | 1848. | 1848. | 0.00 | |
| | EONPKDMHTG | 240 | 311527. | 0.00 | 1848. | 1848. | 15838.62 | |
| | | | | | | | | 51533.05 |
| NOV | | | | | | | | |
| | 4OFPKKWH | 720 | 414840. | 29827.00 | 1457. | 1457. | 0.00 | |
| | EONPKDMHTG | 240 | 282675. | 0.00 | 1457. | 1457. | 12482.72 | |
| | | | | | | | | 42309.72 |

REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

---CONTINUED---

| MONTH | CHARGE-ASSIGNMENT (U-NAME) | LENGTH (HR/MO) | CONSUMPTION BY C-A (KWH) | ENERGY CHARGE ($) | MEASURED DEMAND (KW) | BILLING DEMAND (KW) | DEMAND CHARGE ($) | TOTAL CHARGES ($) |
|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | |
| | 4OFPKKWH | 744 | 436376. | 31375.43 | 1457. | 1457. | 0.00 | |
| | BONPKDMHTG | 252 | 298373. | 0.00 | 1457. | 1457. | 12482.72 | |
| | | | | | | | | 43858.15 |
| TOTAL | | | 6251806. | 462965.63 | | | 182979.52 | 645945.13 |

ECO-2

ENTECH ENGINEERING
READING, PA 19603
RS_1 = HOURLY-REPORT

EZDOE - ELITE SOFTWARE DEVELOPMENT INC
4130.05 FT. MONMOUTH - MYER CENTER, NJ

DOE-2.1D 6/26/1996 14:55:35 SDL RUN 1
FTMOACO - SIM MCA H20 ONLY W/OA SCHD1



MCA SUMMER
SETBACK @ 80°F
ON-PEAK USAGE

| MMDDHH | 1SMCAHUS ZR SUPPLY ELECTRIC KW ----(49) | 2SPERFC SUPPLY ELECTRIC KW ----(49) | 3SPERFC SUPPLY ELECTRIC KW ----(49) | 4SPERFC SUPPLY ELECTRIC KW ----(49) |
|---|---|---|---|---|
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 7576.734 | 383.846 | 383.846 | 450.173 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 6855.140 | 347.290 | 347.290 | 407.299 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 8298.327 | 420.403 | 420.403 | 493.046 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 7576.734 | 383.846 | 383.846 | 450.173 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 7576.734 | 383.846 | 383.846 | 450.173 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 7937.531 | 402.125 | 402.125 | 471.610 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 7215.937 | 365.568 | 365.568 | 428.736 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |

| | 1SMCAHUS ZR SUPPLY ELECTRIC KW ----(49) | 2SPERFC SUPPLY ELECTRIC KW ----(49) | 3SPERFC SUPPLY ELECTRIC KW ----(49) | 4SPERFC SUPPLY ELECTRIC KW ----(49) |
|---|---|---|---|---|
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 8298.327 | 420.403 | 420.403 | 493.046 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 7576.734 | 383.846 | 383.846 | 450.173 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 7215.937 | 365.568 | 365.568 | 428.736 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 7215.937 | 365.568 | 365.568 | 428.736 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 7576.734 | 383.846 | 383.846 | 450.173 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| YEARLY SUMMARY | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 90920.805 | 4606.157 | 4606.157 | 5402.074 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |

| MMDDHH | SSZF2MID | SSFZ3MID | SSZF4MID | OSMCAHUS ZR |
|---|---|---|---|---|
| | SUPPLY ELECTRIC KW | SUPPLY ELECTRIC KW | SUPPLY ELECTRIC KW | SUPPLY ELECTRIC KW |
| | ----(49) | ----(49) | ----(49) | ----(49) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 6025.824 | 7371.756 | 7426.086 | 4425.524 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 5451.936 | 6669.684 | 6718.840 | 4004.046 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 6599.711 | 8073.829 | 8133.333 | 4847.002 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 6025.824 | 7371.756 | 7426.086 | 4425.524 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 6025.824 | 7371.756 | 7426.086 | 4425.524 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 6312.768 | 7722.792 | 7779.709 | 4636.263 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 5738.880 | 7020.720 | 7072.463 | 4214.785 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |

| | SSZF2MID SUPPLY ELECTRIC KW ----(49) | SSFZ3MID SUPPLY ELECTRIC KW ----(49) | SSZF4MID SUPPLY ELECTRIC KW ----(49) | OSMCAHUS ZR SUPPLY ELECTRIC KW ----(49) |
|---|---|---|---|---|
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 6599.711 | 8073.829 | 8133.333 | 4847.002 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 6025.824 | 7371.756 | 7426.086 | 4425.524 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 5738.880 | 7020.720 | 7072.463 | 4214.785 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 5738.880 | 7020.720 | 7072.463 | 4214.785 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 6025.824 | 7371.756 | 7426.086 | 4425.524 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| YEARLY SUMMARY | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 72309.883 | 88461.070 | 89113.039 | 53106.289 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |

| MMDDHH | 1EXTPER | 1EXTPER | 1INTPER | 1INTPER |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 72.0 | 73.4 | 72.0 | 73.1 |
| MX | 75.0 | 75.4 | 75.0 | 75.9 |
| SM | 18891.0 | 18851.0 | 18846.0 | 18835.7 |
| AV | 75.0 | 74.8 | 74.8 | 74.7 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 75.0 | 74.1 | 72.0 | 73.0 |
| MX | 75.0 | 75.6 | 75.0 | 76.0 |
| SM | 17100.0 | 17093.5 | 16992.0 | 17050.2 |
| AV | 75.0 | 75.0 | 74.5 | 74.8 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 75.0 | 74.3 | 75.0 | 74.4 |
| MX | 75.0 | 80.8 | 75.0 | 80.7 |
| SM | 20700.0 | 20809.9 | 20700.0 | 20825.4 |
| AV | 75.0 | 75.4 | 75.0 | 75.5 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 75.0 | 74.6 | 75.0 | 74.5 |
| MX | 75.0 | 90.7 | 75.0 | 90.3 |
| SM | 18900.0 | 19587.4 | 18900.0 | 19616.6 |
| AV | 75.0 | 77.7 | 75.0 | 77.8 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 75.0 | 74.7 | 75.0 | 75.5 |
| MX | 75.0 | 97.5 | 75.0 | 97.0 |
| SM | 18900.0 | 19753.6 | 18900.0 | 19892.4 |
| AV | 75.0 | 78.4 | 75.0 | 78.9 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 75.0 | 75.2 | 75.0 | 75.7 |
| MX | 75.0 | 77.9 | 75.0 | 78.4 |
| SM | 19800.0 | 20075.2 | 19800.0 | 20267.0 |
| AV | 75.0 | 76.0 | 75.0 | 76.8 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 75.0 | 75.2 | 75.0 | 76.1 |
| MX | 75.0 | 77.5 | 75.0 | 77.7 |
| SM | 18000.0 | 18288.4 | 18000.0 | 18446.9 |
| AV | 75.0 | 76.2 | 75.0 | 76.9 |

| | 1EXTPER | 1EXTPER | 1INTPER | 1INTPER |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| **MONTHLY SUMMARY (AUG)** | | | | |
| MN | 75.0 | 75.2 | 75.0 | 75.8 |
| MX | 75.0 | 77.6 | 75.0 | 77.7 |
| SM | 20700.0 | 21040.6 | 20700.0 | 21173.5 |
| AV | 75.0 | 76.2 | 75.0 | 76.7 |
| **MONTHLY SUMMARY (SEP)** | | | | |
| MN | 75.0 | 75.0 | 75.0 | 75.0 |
| MX | 75.0 | 77.3 | 75.0 | 77.3 |
| SM | 18900.0 | 19111.7 | 18900.0 | 19182.6 |
| AV | 75.0 | 75.8 | 75.0 | 76.1 |
| **MONTHLY SUMMARY (OCT)** | | | | |
| MN | 75.0 | 74.8 | 75.0 | 74.3 |
| MX | 75.0 | 84.6 | 75.0 | 83.7 |
| SM | 18000.0 | 18375.1 | 18000.0 | 18380.8 |
| AV | 75.0 | 76.6 | 75.0 | 76.6 |
| **MONTHLY SUMMARY (NOV)** | | | | |
| MN | 75.0 | 74.4 | 75.0 | 74.2 |
| MX | 75.0 | 90.8 | 75.0 | 91.1 |
| SM | 18000.0 | 18311.1 | 18000.0 | 18335.8 |
| AV | 75.0 | 76.3 | 75.0 | 76.4 |
| **MONTHLY SUMMARY (DEC)** | | | | |
| MN | 75.0 | 74.1 | 72.0 | 73.7 |
| MX | 75.0 | 78.2 | 75.0 | 78.1 |
| SM | 18900.0 | 18903.1 | 18879.0 | 18931.9 |
| AV | 75.0 | 75.0 | 74.9 | 75.1 |
| **YEARLY SUMMARY** | | | | |
| MN | 72.0 | 73.4 | 72.0 | 73.0 |
| MX | 75.0 | 97.5 | 75.0 | 97.0 |
| SM | 226791.0 | 230200.5 | 226617.0 | 230938.8 |
| AV | 75.0 | 76.1 | 74.9 | 76.4 |

| MMDDHH | 2EXTPER | 2EXTPER | 2INTPER | 2INTPER |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 72.0 | 72.4 | 72.0 | 72.4 |
| MX | 75.0 | 78.6 | 75.0 | 79.3 |
| SM | 18423.0 | 18641.9 | 18435.0 | 18688.2 |
| AV | 73.1 | 74.0 | 73.2 | 74.2 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 72.0 | 72.7 | 72.0 | 72.7 |
| MX | 75.0 | 78.8 | 75.0 | 79.6 |
| SM | 16749.0 | 16994.1 | 16764.0 | 17050.9 |
| AV | 73.5 | 74.5 | 73.5 | 74.8 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 72.0 | 72.7 | 72.0 | 72.7 |
| MX | 75.0 | 85.1 | 75.0 | 86.0 |
| SM | 20445.0 | 21047.0 | 20451.0 | 21129.1 |
| AV | 74.1 | 76.3 | 74.1 | 76.6 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 72.0 | 72.8 | 72.0 | 72.8 |
| MX | 75.0 | 100.4 | 75.0 | 101.6 |
| SM | 18840.0 | 21316.4 | 18846.0 | 21481.7 |
| AV | 74.8 | 84.6 | 74.8 | 85.2 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 72.0 | 71.4 | 72.0 | 71.5 |
| MX | 75.0 | 104.4 | 75.0 | 105.1 |
| SM | 18876.0 | 20721.0 | 18876.0 | 20808.5 |
| AV | 74.9 | 82.2 | 74.9 | 82.6 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 75.0 | 74.4 | 75.0 | 74.4 |
| MX | 75.0 | 75.8 | 75.0 | 75.8 |
| SM | 19800.0 | 19824.3 | 19800.0 | 19820.9 |
| AV | 75.0 | 75.1 | 75.0 | 75.1 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 75.0 | 74.5 | 75.0 | 74.5 |
| MX | 75.0 | 75.7 | 75.0 | 75.7 |
| SM | 18000.0 | 18036.0 | 18000.0 | 18032.6 |
| AV | 75.0 | 75.2 | 75.0 | 75.1 |

| | 2EXTPER THERMOST SETPOINT F ----( 7) | 2EXTPER ZONE TEMP F ----( 6) | 2INTPER THERMOST SETPOINT F ----( 7) | 2INTPER ZONE TEMP F ----( 6) |
|---|---|---|---|---|
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 75.0 | 74.5 | 75.0 | 74.5 |
| MX | 75.0 | 75.8 | 75.0 | 75.8 |
| SM | 20700.0 | 20741.3 | 20700.0 | 20741.6 |
| AV | 75.0 | 75.1 | 75.0 | 75.2 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 72.0 | 73.5 | 72.0 | 73.9 |
| MX | 75.0 | 75.5 | 75.0 | 75.5 |
| SM | 18897.0 | 18872.1 | 18897.0 | 18878.9 |
| AV | 75.0 | 74.9 | 75.0 | 74.9 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 72.0 | 70.5 | 72.0 | 71.4 |
| MX | 75.0 | 92.5 | 75.0 | 94.6 |
| SM | 17976.0 | 18930.8 | 17985.0 | 19083.1 |
| AV | 74.9 | 78.9 | 74.9 | 79.5 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 72.0 | 72.8 | 72.0 | 72.8 |
| MX | 75.0 | 94.2 | 75.0 | 95.0 |
| SM | 17853.0 | 18945.8 | 17868.0 | 19090.0 |
| AV | 74.4 | 78.9 | 74.4 | 79.5 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 72.0 | 72.6 | 72.0 | 72.6 |
| MX | 75.0 | 82.2 | 75.0 | 83.5 |
| SM | 18411.0 | 18695.1 | 18432.0 | 18741.0 |
| AV | 73.1 | 74.2 | 73.1 | 74.4 |
| YEARLY SUMMARY | | | | |
| MN | 72.0 | 70.5 | 72.0 | 71.4 |
| MX | 75.0 | 104.4 | 75.0 | 105.1 |
| SM | 224970.0 | 232766.0 | 225054.0 | 233546.4 |
| AV | 74.4 | 77.0 | 74.4 | 77.2 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/26/1996 14:55:35 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOACO - SIM MCA H20 ONLY W/OA SCHD1
RS_5 = HOURLY-REPORT PAGE 1- 1

| MMDDHH | 3EXTPER | 3EXTPER | 3INTPER | 3INTPER |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 72.0 | 72.4 | 72.0 | 72.4 |
| MX | 75.0 | 78.6 | 75.0 | 79.3 |
| SM | 18423.0 | 18641.9 | 18435.0 | 18688.2 |
| AV | 73.1 | 74.0 | 73.2 | 74.2 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 72.0 | 72.7 | 72.0 | 72.7 |
| MX | 75.0 | 78.8 | 75.0 | 79.6 |
| SM | 16749.0 | 16994.1 | 16764.0 | 17050.9 |
| AV | 73.5 | 74.5 | 73.5 | 74.8 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 72.0 | 72.7 | 72.0 | 72.7 |
| MX | 75.0 | 85.1 | 75.0 | 86.0 |
| SM | 20445.0 | 21047.0 | 20451.0 | 21129.1 |
| AV | 74.1 | 76.3 | 74.1 | 76.6 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 72.0 | 72.8 | 72.0 | 72.8 |
| MX | 75.0 | 100.4 | 75.0 | 101.6 |
| SM | 18840.0 | 21316.4 | 18846.0 | 21481.7 |
| AV | 74.8 | 84.6 | 74.8 | 85.2 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 72.0 | 71.4 | 72.0 | 71.5 |
| MX | 75.0 | 104.4 | 75.0 | 105.1 |
| SM | 18876.0 | 20721.0 | 18876.0 | 20808.5 |
| AV | 74.9 | 82.2 | 74.9 | 82.6 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 75.0 | 74.4 | 75.0 | 74.4 |
| MX | 75.0 | 75.8 | 75.0 | 75.8 |
| SM | 19800.0 | 19824.3 | 19800.0 | 19820.9 |
| AV | 75.0 | 75.1 | 75.0 | 75.1 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 75.0 | 74.5 | 75.0 | 74.5 |
| MX | 75.0 | 75.7 | 75.0 | 75.7 |
| SM | 18000.0 | 18036.0 | 18000.0 | 18032.6 |
| AV | 75.0 | 75.2 | 75.0 | 75.1 |

| | 3EXTPER | 3EXTPER | 3INTPER | 3INTPER |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 75.0 | 74.5 | 75.0 | 74.5 |
| MX | 75.0 | 75.8 | 75.0 | 75.8 |
| SM | 20700.0 | 20741.3 | 20700.0 | 20741.6 |
| AV | 75.0 | 75.1 | 75.0 | 75.2 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 72.0 | 73.5 | 72.0 | 73.9 |
| MX | 75.0 | 75.5 | 75.0 | 75.5 |
| SM | 18897.0 | 18872.1 | 18897.0 | 18878.9 |
| AV | 75.0 | 74.9 | 75.0 | 74.9 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 72.0 | 70.5 | 72.0 | 71.4 |
| MX | 75.0 | 92.5 | 75.0 | 94.6 |
| SM | 17976.0 | 18930.7 | 17985.0 | 19083.1 |
| AV | 74.9 | 78.9 | 74.9 | 79.5 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 72.0 | 72.8 | 72.0 | 72.8 |
| MX | 75.0 | 94.2 | 75.0 | 95.0 |
| SM | 17853.0 | 18945.7 | 17868.0 | 19090.0 |
| AV | 74.4 | 78.9 | 74.4 | 79.5 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 72.0 | 72.6 | 72.0 | 72.6 |
| MX | 75.0 | 82.2 | 75.0 | 83.5 |
| SM | 18411.0 | 18695.1 | 18432.0 | 18741.0 |
| AV | 73.1 | 74.2 | 73.1 | 74.4 |
| YEARLY SUMMARY | | | | |
| MN | 72.0 | 70.5 | 72.0 | 71.4 |
| MX | 75.0 | 104.4 | 75.0 | 105.1 |
| SM | 224970.0 | 232765.6 | 225054.0 | 233546.4 |
| AV | 74.4 | 77.0 | 74.4 | 77.2 |

| MMDDHH | 4EXTPER | 4EXTPER | 4INTPER | 4INTPER |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 72.0 | 72.4 | 72.0 | 72.4 |
| MX | 75.0 | 76.3 | 75.0 | 77.2 |
| SM | 18234.0 | 18420.4 | 18240.0 | 18440.7 |
| AV | 72.4 | 73.1 | 72.4 | 73.2 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 72.0 | 72.6 | 72.0 | 72.6 |
| MX | 75.0 | 76.2 | 75.0 | 77.0 |
| SM | 16533.0 | 16727.1 | 16554.0 | 16757.4 |
| AV | 72.5 | 73.4 | 72.6 | 73.5 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 72.0 | 72.6 | 72.0 | 72.6 |
| MX | 75.0 | 82.6 | 75.0 | 83.1 |
| SM | 20268.0 | 20624.0 | 20286.0 | 20662.6 |
| AV | 73.4 | 74.7 | 73.5 | 74.9 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 72.0 | 72.8 | 72.0 | 72.8 |
| MX | 75.0 | 94.4 | 75.0 | 95.2 |
| SM | 18786.0 | 20246.1 | 18786.0 | 20328.8 |
| AV | 74.5 | 80.3 | 74.5 | 80.7 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 72.0 | 69.2 | 72.0 | 69.4 |
| MX | 75.0 | 101.1 | 75.0 | 101.5 |
| SM | 18840.0 | 20109.5 | 18846.0 | 20149.2 |
| AV | 74.8 | 79.8 | 74.8 | 80.0 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 75.0 | 74.2 | 75.0 | 74.2 |
| MX | 75.0 | 75.8 | 75.0 | 75.8 |
| SM | 19800.0 | 19806.8 | 19800.0 | 19806.5 |
| AV | 75.0 | 75.0 | 75.0 | 75.0 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 75.0 | 74.4 | 75.0 | 74.4 |
| MX | 75.0 | 75.7 | 75.0 | 75.7 |
| SM | 18000.0 | 18025.5 | 18000.0 | 18025.0 |
| AV | 75.0 | 75.1 | 75.0 | 75.1 |

| | 4EXTPER | 4EXTPER | 4INTPER | 4INTPER |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 75.0 | 74.1 | 75.0 | 74.1 |
| MX | 75.0 | 75.8 | 75.0 | 75.8 |
| SM | 20700.0 | 20725.5 | 20700.0 | 20729.0 |
| AV | 75.0 | 75.1 | 75.0 | 75.1 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 72.0 | 71.3 | 72.0 | 71.6 |
| MX | 75.0 | 75.4 | 75.0 | 75.5 |
| SM | 18885.0 | 18833.6 | 18885.0 | 18843.3 |
| AV | 74.9 | 74.7 | 74.9 | 74.8 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 72.0 | 65.1 | 72.0 | 66.1 |
| MX | 75.0 | 86.0 | 75.0 | 87.3 |
| SM | 17880.0 | 18328.5 | 17892.0 | 18433.6 |
| AV | 74.5 | 76.4 | 74.6 | 76.8 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 72.0 | 72.7 | 72.0 | 72.7 |
| MX | 75.0 | 88.5 | 75.0 | 89.0 |
| SM | 17670.0 | 18309.8 | 17685.0 | 18364.5 |
| AV | 73.6 | 76.3 | 73.7 | 76.5 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 72.0 | 72.6 | 72.0 | 72.6 |
| MX | 75.0 | 79.8 | 75.0 | 80.7 |
| SM | 18240.0 | 18478.9 | 18243.0 | 18498.7 |
| AV | 72.4 | 73.3 | 72.4 | 73.4 |
| YEARLY SUMMARY | | | | |
| MN | 72.0 | 65.1 | 72.0 | 66.1 |
| MX | 75.0 | 101.1 | 75.0 | 101.5 |
| SM | 223836.0 | 228635.7 | 223917.0 | 229039.3 |
| AV | 74.0 | 75.6 | 74.0 | 75.7 |

| MMDDHH | 2MIDL | 2MIDL | 3MIDL | 3MIDL |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 75.0 | 74.7 | 75.0 | 74.8 |
| MX | 75.0 | 76.0 | 75.0 | 76.0 |
| SM | 18900.0 | 19049.2 | 18900.0 | 19056.2 |
| AV | 75.0 | 75.6 | 75.0 | 75.6 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 75.0 | 74.9 | 75.0 | 74.9 |
| MX | 75.0 | 76.0 | 75.0 | 76.0 |
| SM | 17100.0 | 17239.7 | 17100.0 | 17245.3 |
| AV | 75.0 | 75.6 | 75.0 | 75.6 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 75.0 | 74.9 | 75.0 | 74.9 |
| MX | 75.0 | 82.1 | 75.0 | 82.1 |
| SM | 20700.0 | 20961.8 | 20700.0 | 20967.7 |
| AV | 75.0 | 75.9 | 75.0 | 76.0 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 75.0 | 75.1 | 75.0 | 75.1 |
| MX | 75.0 | 91.5 | 75.0 | 91.5 |
| SM | 18900.0 | 19772.1 | 18900.0 | 19780.4 |
| AV | 75.0 | 78.5 | 75.0 | 78.5 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 75.0 | 75.1 | 75.0 | 75.1 |
| MX | 75.0 | 98.3 | 75.0 | 98.3 |
| SM | 18900.0 | 19963.6 | 18900.0 | 19973.4 |
| AV | 75.0 | 79.2 | 75.0 | 79.3 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 75.0 | 75.4 | 75.0 | 75.4 |
| MX | 75.0 | 78.2 | 75.0 | 78.2 |
| SM | 19800.0 | 20246.3 | 19800.0 | 20254.8 |
| AV | 75.0 | 76.7 | 75.0 | 76.7 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 75.0 | 75.6 | 75.0 | 75.6 |
| MX | 75.0 | 78.0 | 75.0 | 78.0 |
| SM | 18000.0 | 18445.5 | 18000.0 | 18451.7 |
| AV | 75.0 | 76.9 | 75.0 | 76.9 |

| | 2MIDL | 2MIDL | 3MIDL | 3MIDL |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 75.0 | 75.5 | 75.0 | 75.5 |
| MX | 75.0 | 78.0 | 75.0 | 78.0 |
| SM | 20700.0 | 21198.8 | 20700.0 | 21206.7 |
| AV | 75.0 | 76.8 | 75.0 | 76.8 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 75.0 | 75.2 | 75.0 | 75.2 |
| MX | 75.0 | 77.9 | 75.0 | 77.9 |
| SM | 18900.0 | 19247.4 | 18900.0 | 19257.9 |
| AV | 75.0 | 76.4 | 75.0 | 76.4 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 75.0 | 75.1 | 75.0 | 75.1 |
| MX | 75.0 | 85.2 | 75.0 | 85.2 |
| SM | 18000.0 | 18548.7 | 18000.0 | 18558.7 |
| AV | 75.0 | 77.3 | 75.0 | 77.3 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 75.0 | 74.9 | 75.0 | 75.0 |
| MX | 75.0 | 92.8 | 75.0 | 92.9 |
| SM | 18000.0 | 18488.1 | 18000.0 | 18497.4 |
| AV | 75.0 | 77.0 | 75.0 | 77.1 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 75.0 | 74.9 | 75.0 | 74.9 |
| MX | 75.0 | 79.6 | 75.0 | 79.6 |
| SM | 18900.0 | 19072.6 | 18900.0 | 19079.5 |
| AV | 75.0 | 75.7 | 75.0 | 75.7 |
| YEARLY SUMMARY | | | | |
| MN | 75.0 | 74.7 | 75.0 | 74.8 |
| MX | 75.0 | 98.3 | 75.0 | 98.3 |
| SM | 226800.0 | 232233.6 | 226800.0 | 232329.7 |
| AV | 75.0 | 76.8 | 75.0 | 76.8 |

| MMDDHH | 4MIDL THERMOST SETPOINT F ----( 7) | 4MIDL ZONE TEMP F ----( 6) | 0INTEXTPER THERMOST SETPOINT F ----( 7) | 0INTEXTPER ZONE TEMP F ----( 6) |
|---|---|---|---|---|
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 72.0 | 72.8 | 72.0 | 72.8 |
| MX | 75.0 | 74.8 | 75.0 | 74.9 |
| SM | 18543.0 | 18602.9 | 18642.0 | 18654.2 |
| AV | 73.6 | 73.8 | 74.0 | 74.0 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 72.0 | 72.8 | 72.0 | 72.8 |
| MX | 75.0 | 75.0 | 75.0 | 75.3 |
| SM | 16908.0 | 16894.1 | 16986.0 | 16941.0 |
| AV | 74.2 | 74.1 | 74.5 | 74.3 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 72.0 | 73.0 | 72.0 | 73.0 |
| MX | 75.0 | 78.7 | 75.0 | 79.9 |
| SM | 20652.0 | 20604.3 | 20682.0 | 20670.1 |
| AV | 74.8 | 74.7 | 74.9 | 74.9 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 72.0 | 73.9 | 75.0 | 74.2 |
| MX | 75.0 | 88.3 | 75.0 | 91.1 |
| SM | 18894.0 | 19260.0 | 18900.0 | 19420.7 |
| AV | 75.0 | 76.4 | 75.0 | 77.1 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 75.0 | 74.3 | 75.0 | 74.4 |
| MX | 75.0 | 95.5 | 75.0 | 99.4 |
| SM | 18900.0 | 19482.7 | 18900.0 | 19677.8 |
| AV | 75.0 | 77.3 | 75.0 | 78.1 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 75.0 | 74.8 | 75.0 | 75.0 |
| MX | 75.0 | 76.0 | 75.0 | 77.9 |
| SM | 19800.0 | 19925.6 | 19800.0 | 20004.4 |
| AV | 75.0 | 75.5 | 75.0 | 75.8 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 75.0 | 74.9 | 75.0 | 75.1 |
| MX | 75.0 | 76.0 | 75.0 | 77.7 |
| SM | 18000.0 | 18132.0 | 18000.0 | 18208.3 |
| AV | 75.0 | 75.5 | 75.0 | 75.9 |

| | 4MIDL THERMOST SETPOINT F | 4MIDL ZONE TEMP F | OINTEXTP ER THERMOST SETPOINT F | OINTEXTP ER ZONE TEMP F |
|---|---|---|---|---|
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 75.0 | 74.8 | 75.0 | 75.1 |
| MX | 75.0 | 76.0 | 75.0 | 77.4 |
| SM | 20700.0 | 20845.3 | 20700.0 | 20946.6 |
| AV | 75.0 | 75.5 | 75.0 | 75.9 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 75.0 | 74.6 | 75.0 | 74.9 |
| MX | 75.0 | 75.8 | 75.0 | 76.7 |
| SM | 18900.0 | 18974.8 | 18900.0 | 19056.8 |
| AV | 75.0 | 75.3 | 75.0 | 75.6 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 75.0 | 74.1 | 75.0 | 74.6 |
| MX | 75.0 | 82.4 | 75.0 | 84.9 |
| SM | 18000.0 | 18120.0 | 18000.0 | 18260.2 |
| AV | 75.0 | 75.5 | 75.0 | 76.1 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 72.0 | 73.0 | 75.0 | 74.0 |
| MX | 75.0 | 87.9 | 75.0 | 91.0 |
| SM | 17958.0 | 18066.4 | 18000.0 | 18191.2 |
| AV | 74.8 | 75.3 | 75.0 | 75.8 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 72.0 | 72.9 | 72.0 | 72.9 |
| MX | 75.0 | 76.5 | 75.0 | 77.4 |
| SM | 18678.0 | 18675.6 | 18783.0 | 18745.8 |
| AV | 74.1 | 74.1 | 74.5 | 74.4 |
| YEARLY SUMMARY | | | | |
| MN | 72.0 | 72.8 | 72.0 | 72.8 |
| MX | 75.0 | 95.5 | 75.0 | 99.4 |
| SM | 225933.0 | 227583.6 | 226293.0 | 228777.0 |
| AV | 74.7 | 75.3 | 74.8 | 75.7 |

REPORT- PV-A EQUIPMENT SIZES WEATHER FILE- NEWARK, NJ

| EQUIPMENT | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 4.101 | 1 | 1 | | | | | | | | | | | | | | | |
| HERM-CENT-CHLR | 7.800 | 1 | 1 | | | | | | | | | | | | | | | |
| COOLING-TWR | 2.379 | 4 | 4 | | | | | | | | | | | | | | | |

REPORT- PS-C EQUIPMENT PART LOAD OPERATION WEATHER FILE- NEWARK, NJ

| EQUIPMENT | HOURS AT PERCENT PART LOAD RATIO 0 -- 10 | -- 20 | -- 30 | -- 40 | -- 50 | -- 60 | -- 70 | -- 80 | -- 90 | -- 100 | - 110+ | TOTAL HOURS | ANNUAL LOAD (MBTU) | FALSE LOAD (MBTU) | ELEC USED (MBTU) | THERMAL USED (MBTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 2827 | 616 | 634 | 478 | 311 | 139 | 41 | 28 | 9 | 4 | 1 | 5088 | 3096.9 | 0.0 | 202.4 | 4504.8 |
| | 2827 | 616 | 634 | 478 | 311 | 139 | 41 | 28 | 9 | 4 | 1 | | | | | |
| HERM-CENT-CHLR | 1286 | 825 | 408 | 207 | 244 | 352 | 266 | 81 | 3 | 0 | 0 | 3672 | 8366.2 | 0.0 | 1972.7 | 0.0 |
| | 1286 | 825 | 408 | 207 | 244 | 352 | 266 | 81 | 3 | 0 | 0 | | | | | |
| COOLING-TWR | 1660 | 651 | 227 | 116 | 89 | 77 | 68 | 102 | 125 | 115 | 442 | 3672 | 10338.9 | 0.0 | 807.7 | 0.0 |
| | 1660 | 651 | 227 | 116 | 89 | 77 | 68 | 102 | 125 | 115 | 442 | | | | | |

HOT LOOP CIRCULATION PUMP ELECTRICAL USE = 154.2 MBTU
COLD LOOP CIRCULATION PUMP ELECTRICAL USE = 993.6 MBTU

NOTES TO TABLE

1) THE FIRST PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE HOURLY OPERATING CAPACITY

2) THE SECOND PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE TOTAL INSTALLED CAPACITY

| HEATING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HW-BOILER | 3096.9 | 100.0 |
| LOAD SATISFIED | 3096.9 | 100.0 |
| TOTAL LOAD ON PLANT | 3096.9 | |

| COOLING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HERM-CENT-CHLR | 8366.2 | 100.0 |
| LOAD SATISFIED | 8366.2 | 100.0 |
| TOTAL LOAD ON PLANT | 8366.2 | |

| ELECTRICAL LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| ELECTRICITY | 21337.4 | 100.0 |
| LOAD SATISFIED | 21337.4 | 100.0 |
| TOTAL LOAD ON PLANT | 21337.3 | |

TOWER ABOVE DESIGN TEMPERATURE OF 85.F 1 HOURS
MAXIMUM TOWER EXIT TEMPERATURE = 86.F

SUMMARY OF LOADS MET

| TYPE OF LOAD | TOTAL LOAD (MBTU) | LOAD SATISFIED (MBTU) | TOTAL OVERLOAD (MBTU) | PEAK OVERLOAD (MBTU) | HOURS OVERLOADED |
|---|---|---|---|---|---|
| HEATING LOADS | 3096.9 | 3096.9 | 0.000 | 0.000 | 0 |
| COOLING LOADS | 8366.2 | 8366.2 | 0.000 | 0.000 | 0 |
| ELECTRICAL LOADS | 21337.3 | 21337.4 | 0.000 | 0.000 | 0 |

| E Q U I P M E N T | AVG OPER RATIO | MAX LOAD (MBTU) | MON | DAY | HR | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 0.148 | 4.101 | 2 | 20 | 3 | 4.101 | 5088 | | | | | | | | |
| HERM-CENT-CHLR | 0.292 | 7.613 | 6 | 13 | 15 | 7.800 | 3672 | | | | | | | | |
| COOLING-TWR | 0.296 | 9.214 | 6 | 13 | 15 | 2.379 | 14688 | | | | | | | | |

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|---|---|---|
| CATEGORY OF USE | | |
| SPACE HEAT | 202.45 | 4504.78 |
| SPACE COOL | 2780.41 | 0.00 |
| HVAC AUX | 3574.63 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 10258.50 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 4521.37 | 0.00 |
| TOTAL | 21337.36 | 4504.78 |

| | | | |
|---|---|---|---|
| TOTAL SITE ENERGY | 25842.22 MBTU | 78.4 KBTU/SQFT-YR GROSS-AREA | 78.4 KBTU/SQFT-YR NET-AREA |
| TOTAL SOURCE ENERGY | 68581.08 MBTU | 208.1 KBTU/SQFT-YR GROSS-AREA | 208.1 KBTU/SQFT-YR NET-AREA |

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 10.1
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/26/1996 14:55:35 PDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
RP_1 = HOURLY-REPORT PAGE 1- 1

| MMDDHH | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | HERM-CEN T-CHLR ENTERING COND TEM F | HERM-CEN T-CHLR LEAVING COLD TEM F | COOLING-TWR WATER FLOWRATE GAL/MIN | COOLING-TWR RANGE R | COOLING-TWR FAN ELEC BTU/HR | COOLING-TWR PUMP ELEC BTU/HR |
|---|---|---|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----(12) | ----(13) | ----( 8) | ----(10) | ----(20) | ----(21) |
| MONTHLY SUMMARY (JAN) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (FEB) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (MAR) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (APR) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (MAY) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 6615459. | 1322150. | 80.8 | 56.0 | 1950.0 | 8.2 | 140410. | 90465. |
| SM | 437461248. | 88799120. | 8996.5 | 7244.9 | 257400.0 | 550.3 | 17564832. | 11941428. |
| AV | 1735957. | 352377. | 35.7 | 28.7 | 1021.4 | 2.2 | 69702. | 47387. |
| MONTHLY SUMMARY (JUN) | | | | | | | | |
| MN | 1269013. | 409250. | 64.4 | 54.2 | 1950.0 | 1.8 | 121511. | 90465. |
| MX | 7613137. | 1600753. | 84.6 | 56.3 | 1950.0 | 9.5 | 140410. | 90465. |
| SM | 1311711104. | 253112768. | 19315.1 | 14639.3 | 514800.0 | 1625.7 | 36907224. | 23882852. |
| AV | 4968603. | 958761. | 73.2 | 55.5 | 1950.0 | 6.2 | 139800. | 90465. |
| MONTHLY SUMMARY (JUL) | | | | | | | | |
| MN | 2474031. | 532226. | 65.0 | 54.6 | 1950.0 | 3.2 | 138581. | 90465. |
| MX | 7280946. | 1500438. | 82.9 | 56.2 | 1950.0 | 9.1 | 140410. | 90465. |
| SM | 1299012736. | 249199456. | 17977.1 | 13345.1 | 468000.0 | 1606.7 | 33696456. | 21711684. |
| AV | 5412553. | 1038331. | 74.9 | 55.6 | 1950.0 | 6.7 | 140402. | 90465. |

| | HERM-CEN T-CHLR LOAD BTU/HR ----( 1) | HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----( 3) | HERM-CEN T-CHLR ENTERING COND TEM F ----(12) | HERM-CEN T-CHLR LEAVING COLD TEM F ----(13) | COOLING-TWR WATER FLOWRATE GAL/MIN ----( 8) | COOLING-TWR RANGE R ----(10) | COOLING-TWR FAN ELEC BTU/HR ----(20) | COOLING-TWR PUMP ELEC BTU/HR ----(21) |
|---|---|---|---|---|---|---|---|---|
| MONTHLY SUMMARY (AUG) | | | | | | | | |
| MN | 1954105. | 474979. | 65.0 | 54.4 | 1950.0 | 2.6 | 130798. | 90465. |
| MX | 7520791. | 1567125. | 86.1 | 56.3 | 1950.0 | 9.4 | 140410. | 90465. |
| SM | 1480035840. | 286303264. | 20711.9 | 15342.0 | 538200.1 | 1833.2 | 38732536. | 24968436. |
| AV | 5362449. | 1037331. | 75.0 | 55.6 | 1950.0 | 6.6 | 140335. | 90465. |
| MONTHLY SUMMARY (SEP) | | | | | | | | |
| MN | 369178. | 174163. | 64.4 | 53.9 | 1950.0 | 0.6 | 107886. | 90465. |
| MX | 6498493. | 1307453. | 82.9 | 56.0 | 1950.0 | 8.1 | 140410. | 90465. |
| SM | 968593152. | 191210848. | 17492.8 | 13876.9 | 491400.0 | 1209.6 | 34474932. | 22797268. |
| AV | 3843624. | 758773. | 69.4 | 55.1 | 1950.0 | 4.8 | 136805. | 90465. |
| MONTHLY SUMMARY (OCT) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 5270618. | 974010. | 71.5 | 55.6 | 1950.0 | 6.5 | 140410. | 90465. |
| SM | 207899664. | 51166644. | 7064.5 | 5876.2 | 210600.0 | 274.5 | 13714714. | 9770260. |
| AV | 866249. | 213194. | 29.4 | 24.5 | 877.5 | 1.1 | 57145. | 40709. |
| MONTHLY SUMMARY (NOV) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (DEC) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| YEARLY SUMMARY | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 7613137. | 1600753. | 86.1 | 56.3 | 1950.0 | 9.5 | 140410. | 90465. |
| SM | 5704714240. | 1119792000. | 91557.9 | 70324.4 | 2480400.3 | 7100.0 | 175090704. | 115071920. |
| AV | 1886480. | 370302. | 30.3 | 23.3 | 820.2 | 2.3 | 57900. | 38053. |

| MMDDHH | HW-BOILER LOAD BTU/HR ----( 1) | HW-BOILER ELECTRIC USE BTU/HR ----( 3) | HW-BOILER FUEL USE BTU/HR ----( 4) | HW-BOILER CAPACITY RUNNING BTU/HR ----( 7) |
|---|---|---|---|---|
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 13589. | 1196. | 21318. | 4100792. |
| MX | 3021471. | 90217. | 3808477. | 4100792. |
| SM | 137028992. | 8995817. | 199436112. | 1033399296. |
| AV | 543766. | 35698. | 791413. | 4100791. |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 13589. | 1196. | 21318. | 4100792. |
| MX | 1723249. | 90217. | 2398700. | 4100792. |
| SM | 55065024. | 4721942. | 85777768. | 934980352. |
| AV | 241513. | 20710. | 376218. | 4100791. |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 13589. | 1196. | 21318. | 4100792. |
| MX | 1656957. | 90217. | 2324611. | 4100792. |
| SM | 50730196. | 4173791. | 78165096. | 1131818240. |
| AV | 183805. | 15122. | 283207. | 4100791. |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 13589. | 1196. | 21318. | 4100792. |
| MX | 1020145. | 89773. | 1600378. | 4100792. |
| SM | 14631465. | 1287569. | 22953464. | 1033399296. |
| AV | 58061. | 5109. | 91085. | 4100791. |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 178783. | 15733. | 280470. | 4100792. |
| SM | 3633134. | 319716. | 5699565. | 492095040. |
| AV | 14417. | 1269. | 22617. | 1952758. |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |

| | HW-BOILER LOAD BTU/HR ----( 1) | HW-BOILER ELECTRIC USE BTU/HR ----( 3) | HW-BOILER FUEL USE BTU/HR ----( 4) | HW-BOILER CAPACITY RUNNING BTU/HR ----( 7) |
|---|---|---|---|---|
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 196390. | 17282. | 308091. | 4100792. |
| SM | 4380862. | 385516. | 6872583. | 541304576. |
| AV | 18254. | 1606. | 28636. | 2255436. |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 13589. | 1196. | 21318. | 4100792. |
| MX | 1254786. | 90217. | 1870762. | 4100792. |
| SM | 29133240. | 2513368. | 45460880. | 984189824. |
| AV | 121389. | 10472. | 189420. | 4100791. |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 13589. | 1196. | 21318. | 4100792. |
| MX | 1863299. | 90217. | 2554551. | 4100792. |
| SM | 97294448. | 7980622. | 149779536. | 1033399296. |
| AV | 386089. | 31669. | 594363. | 4100791. |
| YEARLY SUMMARY | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 3021471. | 90217. | 3808477. | 4100792. |
| SM | 391897344. | 30378340. | 594144960. | 7184585728. |
| AV | 129596. | 10046. | 196477. | 2375855. |

ENTECH ENGINEERING          EZDOE - ELITE SOFTWARE DEVELOPMENT INC          DOE-2.1D   6/26/1996   14:55:35  EDL  RUN 1
READING,     PA     19603     4130.05 FT. MONMOUTH - MYER CENTER, NJ   FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- EV-B  COST OF FUELS AND UTILITIES

| ENERGY SOURCE | ENERGY UNIT (BTU) | UNIFORM COST /UNIT ($) | COST ESCLA-ATION RATE | MIN MNTHLY CHARGE ($) | RATE LIMIT /UNIT ($) | FIXED MNTHLY CHARG1 ($) | FIXED MNTHLY CHARG2 ($) | ASSIGN-SCHEDULE (U-NAME) | ASSIGN-CHARGE1 (U-NAME) | ASSIGN-CHARGE2 (U-NAME) |
|---|---|---|---|---|---|---|---|---|---|---|
| ELECTRIC | 3413.00 | 0.0000 | 5.000 | 0.00 | 1000000.000 | 0.00 | 0.00 | YELEC1 | | |
| FUEL-OIL | 138690.00 | 0.5900 | 5.000 | 0.00 | 1000000.000 | 0.00 | 0.00 | | | |

REPORT- ES-D SUMMARY OF FUEL AND UTILITY USE AND COSTS

| MONTH | ELECTRIC UNIT= 3413.00 | FUEL-OIL UNIT= 138690.00 |
|---|---|---|
| JAN | | |
| ENERGY CONSUMPTION (UNIT/MO) | 437963. | 8353. |
| PEAK DEMAND (UNIT/HR) | 1457. | 33. |
| TOTAL COST ($) | 43972.25 | 4928.39 |
| FEB | | |
| ENERGY CONSUMPTION (UNIT/MO) | 393296. | 6604. |
| PEAK DEMAND (UNIT/HR) | 1457. | 35. |
| TOTAL COST ($) | 40760.73 | 3896.21 |
| MAR | | |
| ENERGY CONSUMPTION (UNIT/MO) | 455580. | 4791. |
| PEAK DEMAND (UNIT/HR) | 1457. | 21. |
| TOTAL COST ($) | 45238.93 | 2826.42 |
| APR | | |
| ENERGY CONSUMPTION (UNIT/MO) | 429387. | 1519. |
| PEAK DEMAND (UNIT/HR) | 1449. | 17. |
| TOTAL COST ($) | 43288.15 | 896.48 |
| MAY | | |
| ENERGY CONSUMPTION (UNIT/MO) | 536732. | 198. |
| PEAK DEMAND (UNIT/HR) | 1943. | 3. |
| TOTAL COST ($) | 55242.44 | 116.83 |
| JUN | | |
| ENERGY CONSUMPTION (UNIT/MO) | 664362. | 0. |
| PEAK DEMAND (UNIT/HR) | 2022. | 0. |
| TOTAL COST ($) | 70361.52 | 0.00 |
| JUL | | |
| ENERGY CONSUMPTION (UNIT/MO) | 666001. | 0. |
| PEAK DEMAND (UNIT/HR) | 2008. | 0. |
| TOTAL COST ($) | 70081.58 | 0.00 |
| AUG | | |
| ENERGY CONSUMPTION (UNIT/MO) | 697341. | 0. |
| PEAK DEMAND (UNIT/HR) | 2009. | 0. |
| TOTAL COST ($) | 72822.00 | 0.00 |
| SEP | | |
| ENERGY CONSUMPTION (UNIT/MO) | 623481. | 0. |
| PEAK DEMAND (UNIT/HR) | 1951. | 0. |
| TOTAL COST ($) | 66476.63 | 0.00 |
| OCT | | |
| ENERGY CONSUMPTION (UNIT/MO) | 496446. | 310. |
| PEAK DEMAND (UNIT/HR) | 1848. | 9. |
| TOTAL COST ($) | 51533.05 | 183.03 |
| NOV | | |
| ENERGY CONSUMPTION (UNIT/MO) | 414840. | 3269. |
| PEAK DEMAND (UNIT/HR) | 1457. | 22. |
| TOTAL COST ($) | 42309.72 | 1928.80 |
| DEC | | |
| ENERGY CONSUMPTION (UNIT/MO) | 436376. | 7437. |
| PEAK DEMAND (UNIT/HR) | 1457. | 25. |
| TOTAL COST ($) | 43858.15 | 4387.78 |
| TOTAL | | |
| ENERGY CONSUMPTION (UNIT/YR) | 6251806. | 32481. |
| PEAK DEMAND (UNIT/HR) | 2022. | 35. |
| TOTAL COST ($) | 645945.13 | 19163.94 |

ENTECH ENGINEERING          EZDOE - ELITE SOFTWARE DEVELOPMENT INC          DOE-2.1D   6/26/1996   14:55:35 EDL  RUN 1
READING,  PA   19603        4130.05 FT. MONMOUTH - MYER CENTER, NJ  FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

| MONTH | CHARGE-ASSIGNMENT (U-NAME) | LENGTH (HR/MO) | CONSUMPTION BY C-A (KWH) | ENERGY CHARGE ($) | MEASURED DEMAND (KW) | BILLING DEMAND (KW) | DEMAND CHARGE ($) | TOTAL CHARGES ($) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| | 4OFPKKWH | 744 | 437963. | 31489.53 | 1457. | 1457. | 0.00 | |
| | EONPKDMHTG | 252 | 298671. | 0.00 | 1457. | 1457. | 12482.72 | |
| | | | | | | | | 43972.25 |
| FEB | | | | | | | | |
| | 4OFPKKWH | 672 | 393296. | 28278.01 | 1457. | 1457. | 0.00 | |
| | EONPKDMHTG | 228 | 269225. | 0.00 | 1457. | 1457. | 12482.72 | |
| | | | | | | | | 40760.73 |
| MAR | | | | | | | | |
| | 4OFPKKWH | 744 | 455580. | 32756.21 | 1457. | 1457. | 0.00 | |
| | EONPKDMHTG | 276 | 325452. | 0.00 | 1457. | 1457. | 12482.72 | |
| | | | | | | | | 45238.93 |
| APR | | | | | | | | |
| | 4OFPKKWH | 720 | 429387. | 30872.93 | 1449. | 1449. | 0.00 | |
| | EONPKDMHTG | 252 | 296413. | 0.00 | 1449. | 1449. | 12415.23 | |
| | | | | | | | | 43288.15 |
| MAY | | | | | | | | |
| | 4OFPKKWH | 744 | 536732. | 38591.05 | 1943. | 1943. | 0.00 | |
| | EONPKDMHTG | 252 | 340085. | 0.00 | 1943. | 1943. | 16651.39 | |
| | | | | | | | | 55242.44 |
| JUN | | | | | | | | |
| | 4OFPKKWH | 456 | 243672. | 17520.00 | 1144. | 1144. | 0.00 | |
| | EONPKDMCL | 264 | 420690. | 0.00 | 2022. | 2022. | 19144.21 | |
| | EONPKKWH | 264 | 420690. | 33697.30 | 2022. | 2022. | 0.00 | |
| | | | | | | | | 70361.52 |
| JUL | | | | | | | | |
| | 4OFPKKWH | 504 | 277917. | 19982.25 | 1123. | 1123. | 0.00 | |
| | EONPKDMCL | 240 | 388083. | 0.00 | 2008. | 2008. | 19013.84 | |
| | EONPKKWH | 240 | 388083. | 31085.49 | 2008. | 2008. | 0.00 | |
| | | | | | | | | 70081.58 |
| AUG | | | | | | | | |
| | 4OFPKKWH | 468 | 251131. | 18056.33 | 1151. | 1151. | 0.00 | |
| | EONPKDMCL | 276 | 446210. | 0.00 | 2009. | 2009. | 19024.27 | |
| | EONPKKWH | 276 | 446210. | 35741.40 | 2009. | 2009. | 0.00 | |
| | | | | | | | | 72822.00 |
| SEP | | | | | | | | |
| | 4OFPKKWH | 468 | 236900. | 17033.13 | 1116. | 1116. | 0.00 | |
| | EONPKDMCL | 252 | 386581. | 0.00 | 1951. | 1951. | 18478.37 | |
| | EONPKKWH | 252 | 386581. | 30965.12 | 1951. | 1951. | 0.00 | |
| | | | | | | | | 66476.63 |
| OCT | | | | | | | | |
| | 4OFPKKWH | 744 | 496446. | 35694.44 | 1848. | 1848. | 0.00 | |
| | EONPKDMHTG | 240 | 311527. | 0.00 | 1848. | 1848. | 15838.62 | |
| | | | | | | | | 51533.05 |
| NOV | | | | | | | | |
| | 4OFPKKWH | 720 | 414840. | 29827.00 | 1457. | 1457. | 0.00 | |
| | EONPKDMHTG | 240 | 282675. | 0.00 | 1457. | 1457. | 12482.72 | |
| | | | | | | | | 42309.72 |

REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

CONTINUED

| MONTH | CHARGE-ASSIGNMENT (U-NAME) | LENGTH (HR/MO) | CONSUMPTION BY C-A (KWH) | ENERGY CHARGE ($) | MEASURED DEMAND (KW) | BILLING DEMAND (KW) | DEMAND CHARGE ($) | TOTAL CHARGES ($) |
|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | |
| | 4OFPKKWH | 744 | 436376. | 31375.43 | 1457. | 1457. | 0.00 | |
| | EONPKDMHTG | 252 | 298373. | 0.00 | 1457. | 1457. | 12482.72 | |
| | | | | | | | | 43858.15 |
| TOTAL | | | 6251806. | 462965.63 | | | 182979.52 | 645945.13 |

ECO-3

ENTECH ENGINEERING          EZDOE - ELITE SOFTWARE DEVELOPMENT INC          DOE-2.1D    7/ 1/1996    11:18:57  PDL RUN 1
READING,    PA    19603          4130.05 FT. MONMOUTH - MYER CENTER, NJ  FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- PV-A  EQUIPMENT SIZES          WEATHER FILE- NEWARK, NJ

| E Q U I P M E N T | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 4.038 | 1 | 1 | | | | | | | | | | | | | | | |
| HERM-CENT-CHLR | 7.800 | 1 | 1 | | | | | | | | | | | | | | | |
| COOLING-TWR | 2.379 | 4 | 4 | | | | | | | | | | | | | | | |

MODEL OAC
INFILTRATION W/ 25%
REDUCTION

OFF-PEAK USAGE

| EQUIPMENT | HOURS AT PERCENT PART LOAD RATIO 0 -- 10 | -- 20 | -- 30 | -- 40 | -- 50 | -- 60 | -- 70 | -- 80 | -- 90 | -- 100 | - 110+ | TOTAL HOURS | ANNUAL LOAD (MBTU) | FALSE LOAD (MBTU) | ELEC USED (MBTU) | THERMAL USED (MBTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 3062 | 568 | 512 | 430 | 294 | 110 | 62 | 36 | 9 | 4 | 1 | 5088 | 2807.1 | 0.0 | 180.1 | 4064.9 |
| | 3062 | 568 | 512 | 430 | 294 | 110 | 62 | 36 | 9 | 4 | 1 | | | | | |
| HERM-CENT-CHLR | 1071 | 521 | 766 | 463 | 318 | 343 | 166 | 24 | 0 | 0 | 0 | 3672 | 8780.1 | 0.0 | 1989.2 | 0.0 |
| | 1071 | 521 | 766 | 463 | 318 | 343 | 166 | 24 | 0 | 0 | 0 | | | | | |
| COOLING-TWR | 1226 | 601 | 570 | 302 | 134 | 112 | 124 | 124 | 116 | 87 | 276 | 3672 | 10769.3 | 0.0 | 813.8 | 0.0 |
| | 1226 | 601 | 570 | 302 | 134 | 112 | 124 | 124 | 116 | 87 | 276 | | | | | |

HOT LOOP CIRCULATION PUMP ELECTRICAL USE = 151.9 MBTU
COLD LOOP CIRCULATION PUMP ELECTRICAL USE = 924.7 MBTU

NOTES TO TABLE

1) THE FIRST PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE HOURLY OPERATING CAPACITY

2) THE SECOND PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE TOTAL INSTALLED CAPACITY

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 1/1996 11:18:57 PDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- PS-D PLANT LOADS SATISFIED WEATHER FILE- NEWARK, NJ

| HEATING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HW-BOILER | 2807.1 | 100.0 |
| LOAD SATISFIED | 2807.1 | 100.0 |
| TOTAL LOAD ON PLANT | 2807.1 | |

| COOLING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HERM-CENT-CHLR | 8780.1 | 100.0 |
| LOAD SATISFIED | 8780.1 | 100.0 |
| TOTAL LOAD ON PLANT | 8780.1 | |

| ELECTRICAL LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| ELECTRICITY | 23047.1 | 100.0 |
| LOAD SATISFIED | 23047.1 | 100.0 |
| TOTAL LOAD ON PLANT | 23047.5 | |

TOWER ABOVE DESIGN TEMPERATURE OF 85.F 1 HOURS
MAXIMUM TOWER EXIT TEMPERATURE = 85.F

SUMMARY OF LOADS MET

| TYPE OF LOAD | TOTAL LOAD (MBTU) | LOAD SATISFIED (MBTU) | TOTAL OVERLOAD (MBTU) | PEAK OVERLOAD (MBTU) | HOURS OVERLOADED |
|---|---|---|---|---|---|
| HEATING LOADS | 2807.1 | 2807.1 | 0.000 | 0.000 | 0 |
| COOLING LOADS | 8780.1 | 8780.1 | 0.000 | 0.000 | 0 |
| ELECTRICAL LOADS | 23047.5 | 23047.1 | 0.000 | 0.000 | 0 |

| E Q U I P M E N T | AVG OPER RATIO | MAX LOAD (MBTU) | MON | DAY | HR | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 0.137 | 4.038 | 2 | 20 | 3 | 4.038 | 5088 | | | | | | | | |
| HERM-CENT-CHLR | 0.307 | 7.085 | 8 | 18 | 15 | 7.800 | 3672 | | | | | | | | |
| COOLING-TWR | 0.308 | 8.543 | 6 | 13 | 15 | 2.379 | 14688 | | | | | | | | |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 1/1996 11:18:57 PDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE WEATHER FILE- NEWARK, NJ

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|---|---|---|
| CATEGORY OF USE | | |
| SPACE HEAT | 180.11 | 4064.88 |
| SPACE COOL | 2802.93 | 0.00 |
| HVAC AUX | 5283.90 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 10258.25 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 4521.26 | 0.00 |
| TOTAL | 23046.46 | 4064.88 |

TOTAL SITE ENERGY 27111.97 MBTU 82.3 KBTU/SQFT-YR GROSS-AREA 82.3 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 73275.33 MBTU 222.4 KBTU/SQFT-YR GROSS-AREA 222.4 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 3.8
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

| MMDDHH | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | HERM-CEN T-CHLR ENTERING COND TEM F | HERM-CEN T-CHLR LEAVING COLD TEM F | COOLING-TWR WATER FLOWRATE GAL/MIN | COOLING-TWR RANGE R | COOLING-TWR FAN ELEC BTU/HR | COOLING-TWR PUMP ELEC BTU/HR |
|---|---|---|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----(12) | ----(13) | ----( 8) | ----(10) | ----(20) | ----(21) |
| MONTHLY SUMMARY (JAN) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (FEB) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (MAR) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (APR) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (MAY) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 5606697. | 1057932. | 76.9 | 55.8 | 1950.0 | 6.9 | 140410. | 90465. |
| SM | 207910800. | 69468808. | 16621.7 | 13621.5 | 491400.0 | 305.3 | 29105650. | 22797268. |
| AV | 422583. | 141197. | 33.8 | 27.7 | 998.8 | 0.6 | 59158. | 46336. |
| MONTHLY SUMMARY (JUN) | | | | | | | | |
| MN | 294536. | 138901. | 64.5 | 53.9 | 1950.0 | 0.5 | 106265. | 90465. |
| MX | 4273526. | 834695. | 80.0 | 55.3 | 1950.0 | 5.3 | 140410. | 90465. |
| SM | 795309120. | 202452688. | 31423.1 | 24802.8 | 889200.1 | 1060.6 | 59769016. | 41252200. |
| AV | 1744099. | 443975. | 68.9 | 54.4 | 1950.0 | 2.3 | 131072. | 90465. |
| MONTHLY SUMMARY (JUL) | | | | | | | | |
| MN | 329479. | 155419. | 65.0 | 53.9 | 1950.0 | 0.6 | 113415. | 90465. |
| MX | 4229558. | 830064. | 79.0 | 55.3 | 1950.0 | 5.3 | 140410. | 90465. |
| SM | 1073095552. | 255829792. | 35678.5 | 27485.1 | 982800.1 | 1404.0 | 68536032. | 45594536. |
| AV | 2129158. | 507599. | 70.8 | 54.5 | 1950.0 | 2.8 | 135984. | 90465. |

| | HERM-CEN T-CHLR LOAD BTU/HR ----( 1) | HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----( 3) | HERM-CEN T-CHLR ENTERING COND TEM F ----(12) | HERM-CEN T-CHLR LEAVING COLD TEM F ----(13) | COOLING-TWR WATER FLOWRATE GAL/MIN ----( 8) | COOLING-TWR RANGE R ----(10) | COOLING-TWR FAN ELEC BTU/HR ----(20) | COOLING-TWR PUMP ELEC BTU/HR ----(21) |
|---|---|---|---|---|---|---|---|---|
| MONTHLY SUMMARY (AUG) | | | | | | | | |
| MN | 294536. | 138901. | 64.5 | 53.9 | 1950.0 | 0.5 | 108054. | 90465. |
| MX | 4478983. | 904651. | 82.9 | 55.4 | 1950.0 | 5.6 | 140410. | 90465. |
| SM | 865315712. | 217927440. | 33142.3 | 25473.6 | 912600.1 | 1149.2 | 62408340. | 42337780. |
| AV | 1848965. | 465657. | 70.8 | 54.4 | 1950.0 | 2.5 | 133351. | 90465. |
| MONTHLY SUMMARY (SEP) | | | | | | | | |
| MN | 294536. | 138901. | 65.0 | 53.9 | 1950.0 | 0.5 | 106265. | 90465. |
| MX | 3308904. | 665170. | 78.0 | 55.0 | 1950.0 | 4.2 | 140410. | 90465. |
| SM | 562664832. | 169260320. | 32074.6 | 25362.2 | 912600.1 | 789.1 | 59067972. | 42337784. |
| AV | 1202275. | 361667. | 68.5 | 54.2 | 1950.0 | 1.7 | 126214. | 90465. |
| MONTHLY SUMMARY (OCT) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 2625922. | 562344. | 70.1 | 54.7 | 1950.0 | 3.4 | 140410. | 90465. |
| SM | 115559568. | 49308716. | 16451.3 | 13587.5 | 491400.0 | 190.0 | 28136252. | 22797272. |
| AV | 229285. | 97835. | 32.6 | 27.0 | 975.0 | 0.4 | 55826. | 45233. |
| MONTHLY SUMMARY (NOV) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (DEC) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| YEARLY SUMMARY | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 5606697. | 1057932. | 82.9 | 55.8 | 1950.0 | 6.9 | 140410. | 90465. |
| SM | 3619855616. | 964247744. | 165391.5 | 130332.7 | 4680000.5 | 4898.1 | 307023264. | 217116832. |
| AV | 631077. | 168105. | 28.8 | 22.7 | 815.9 | 0.9 | 53526. | 37852. |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 1/1996 11:18:57 PDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
RP_2 = HOURLY-REPORT PAGE 1- 1

| MMDDHH | HW-BOILER LOAD BTU/HR ----( 1) | HW-BOILER ELECTRIC USE BTU/HR ----( 3) | HW-BOILER FUEL USE BTU/HR ----( 4) | HW-BOILER CAPACITY RUNNING BTU/HR ----( 7) |
|---|---|---|---|---|
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 47751. | 4202. | 74911. | 4038225. |
| MX | 3423144. | 88841. | 4218392. | 4038225. |
| SM | 688620416. | 38225324. | 966023552. | 1986806912. |
| AV | 1399635. | 77694. | 1963463. | 4038226. |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 13382. | 1178. | 20993. | 4038225. |
| MX | 4038225. | 88841. | 4845870. | 4038225. |
| SM | 584812672. | 31672012. | 815745856. | 1792971904. |
| AV | 1317146. | 71333. | 1837266. | 4038225. |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 13382. | 1178. | 20993. | 4038225. |
| MX | 2094475. | 88841. | 2802037. | 4038225. |
| SM | 342445536. | 25682196. | 515275392. | 1889889536. |
| AV | 731721. | 54876. | 1101016. | 4038226. |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 13382. | 1178. | 20993. | 4038225. |
| MX | 1511768. | 88841. | 2154608. | 4038225. |
| SM | 93022688. | 7940094. | 144736848. | 1889889536. |
| AV | 198766. | 16966. | 309267. | 4038226. |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 178219. | 15683. | 279585. | 4038225. |
| SM | 11111955. | 977852. | 17432148. | 969173824. |
| AV | 22585. | 1988. | 35431. | 1969866. |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |

| | HW-BOILER LOAD BTU/HR ----( 1) | HW-BOILER ELECTRIC USE BTU/HR ----( 3) | HW-BOILER FUEL USE BTU/HR ----( 4) | HW-BOILER CAPACITY RUNNING BTU/HR ----( 7) |
|---|---|---|---|---|
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 460250. | 40502. | 722028. | 4038225. |
| SM | 16346390. | 1438483. | 25643796. | 1017632512. |
| AV | 32433. | 2854. | 50881. | 2019112. |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 13382. | 1178. | 20993. | 4038225. |
| MX | 1976723. | 88841. | 2672497. | 4038225. |
| SM | 237940112. | 18795102. | 362754432. | 1938348032. |
| AV | 495709. | 39156. | 755738. | 4038225. |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 13382. | 1178. | 20993. | 4038225. |
| MX | 2628322. | 88841. | 3381122. | 4038225. |
| SM | 591915264. | 35614160. | 846545600. | 1986806912. |
| AV | 1203080. | 72387. | 1720621. | 4038226. |
| YEARLY SUMMARY | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 4038225. | 88841. | 4845870. | 4038225. |
| SM | 2566215168. | 160345232. | 3694157568. | 13471519744. |
| AV | 447388. | 27954. | 644030. | 2348591. |

REPORT- EV-B COST OF FUELS AND UTILITIES

| ENERGY SOURCE | ENERGY UNIT (BTU) | UNIFORM COST /UNIT ($) | COST ESCLA-ATION RATE | MIN MNTHLY CHARGE ($) | RATE LIMIT /UNIT ($) | FIXED MNTHLY CHARG1 ($) | FIXED MNTHLY CHARG2 ($) | ASSIGN-SCHEDULE (U-NAME) | ASSIGN-CHARGE1 (U-NAME) | ASSIGN-CHARGE2 (U-NAME) |
|---|---|---|---|---|---|---|---|---|---|---|
| ELECTRIC | 3413.00 | 0.0000 | 5.000 | 0.00 | 1000000.000 | 0.00 | 0.00 | YELEC1 | | |
| FUEL-OIL | 138690.00 | 0.5900 | 5.000 | 0.00 | 1000000.000 | 0.00 | 0.00 | | | |

REPORT- ES-D SUMMARY OF FUEL AND UTILITY USE AND COSTS

| MONTH | ELECTRIC UNIT= 3413.00 | FUEL-OIL UNIT= 138690.00 |
|---|---|---|
| JAN | | |
| ENERGY CONSUMPTION (UNIT/MO) | 487961. | 7925. |
| PEAK DEMAND (UNIT/HR) | 1455. | 30. |
| TOTAL COST ($) | 47557.54 | 4675.68 |
| FEB | | |
| ENERGY CONSUMPTION (UNIT/MO) | 439306. | 6237. |
| PEAK DEMAND (UNIT/HR) | 1453. | 35. |
| TOTAL COST ($) | 44037.77 | 3680.07 |
| MAR | | |
| ENERGY CONSUMPTION (UNIT/MO) | 503776. | 4040. |
| PEAK DEMAND (UNIT/HR) | 1446. | 20. |
| TOTAL COST ($) | 48611.83 | 2383.83 |
| APR | | |
| ENERGY CONSUMPTION (UNIT/MO) | 469111. | 1157. |
| PEAK DEMAND (UNIT/HR) | 1437. | 16. |
| TOTAL COST ($) | 46045.34 | 682.53 |
| MAY | | |
| ENERGY CONSUMPTION (UNIT/MO) | 568819. | 164. |
| PEAK DEMAND (UNIT/HR) | 1914. | 2. |
| TOTAL COST ($) | 57299.05 | 96.77 |
| JUN | | |
| ENERGY CONSUMPTION (UNIT/MO) | 697866. | 0. |
| PEAK DEMAND (UNIT/HR) | 1981. | 0. |
| TOTAL COST ($) | 72316.75 | 0.00 |
| JUL | | |
| ENERGY CONSUMPTION (UNIT/MO) | 703851. | 0. |
| PEAK DEMAND (UNIT/HR) | 1972. | 0. |
| TOTAL COST ($) | 72397.58 | 0.00 |
| AUG | | |
| ENERGY CONSUMPTION (UNIT/MO) | 733290. | 0. |
| PEAK DEMAND (UNIT/HR) | 1974. | 0. |
| TOTAL COST ($) | 75002.72 | 0.00 |
| SEP | | |
| ENERGY CONSUMPTION (UNIT/MO) | 660800. | 0. |
| PEAK DEMAND (UNIT/HR) | 1918. | 0. |
| TOTAL COST ($) | 68798.25 | 0.00 |
| OCT | | |
| ENERGY CONSUMPTION (UNIT/MO) | 539103. | 229. |
| PEAK DEMAND (UNIT/HR) | 1829. | 5. |
| TOTAL COST ($) | 54434.82 | 135.25 |
| NOV | | |
| ENERGY CONSUMPTION (UNIT/MO) | 462145. | 2814. |
| PEAK DEMAND (UNIT/HR) | 1447. | 19. |
| TOTAL COST ($) | 45628.25 | 1660.25 |
| DEC | | |
| ENERGY CONSUMPTION (UNIT/MO) | 486706. | 6742. |
| PEAK DEMAND (UNIT/HR) | 1450. | 24. |
| TOTAL COST ($) | 47423.10 | 3978.03 |
| TOTAL | | |
| ENERGY CONSUMPTION (UNIT/YR) | 6752735. | 29309. |
| PEAK DEMAND (UNIT/HR) | 1981. | 35. |
| TOTAL COST ($) | 679553.06 | 17292.41 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 1/1996 11:18:57 EDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

| MONTH | CHARGE-ASSIGNMENT (U-NAME) | LENGTH (HR/MO) | CONSUMPTION BY C-A (KWH) | ENERGY CHARGE ($) | MEASURED DEMAND (KW) | BILLING DEMAND (KW) | DEMAND CHARGE ($) | TOTAL CHARGES ($) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| | 4OFPKKWH | 744 | 487961. | 35084.43 | 1455. | 1455. | 0.00 | |
| | EONPKDMHTG | 252 | 297777. | 0.00 | 1455. | 1455. | 12473.11 | |
| | | | | | | | | 47557.54 |
| FEB | | | | | | | | |
| | 4OFPKKWH | 672 | 439306. | 31586.13 | 1453. | 1453. | 0.00 | |
| | EONPKDMHTG | 228 | 268484. | 0.00 | 1453. | 1453. | 12451.63 | |
| | | | | | | | | 44037.77 |
| MAR | | | | | | | | |
| | 4OFPKKWH | 744 | 503776. | 36221.48 | 1446. | 1446. | 0.00 | |
| | EONPKDMHTG | 276 | 324761. | 0.00 | 1446. | 1446. | 12390.35 | |
| | | | | | | | | 48611.83 |
| APR | | | | | | | | |
| | 4OFPKKWH | 720 | 469111. | 33729.11 | 1437. | 1437. | 0.00 | |
| | EONPKDMHTG | 252 | 296112. | 0.00 | 1437. | 1437. | 12316.23 | |
| | | | | | | | | 46045.34 |
| MAY | | | | | | | | |
| | 4OFPKKWH | 744 | 568819. | 40898.05 | 1914. | 1914. | 0.00 | |
| | EONPKDMHTG | 252 | 337596. | 0.00 | 1914. | 1914. | 16400.99 | |
| | | | | | | | | 57299.05 |
| JUN | | | | | | | | |
| | 4OFPKKWH | 456 | 285499. | 20527.35 | 1088. | 1088. | 0.00 | |
| | EONPKDMCL | 264 | 412368. | 0.00 | 1981. | 1981. | 18758.73 | |
| | EONPKKWH | 264 | 412368. | 33030.67 | 1981. | 1981. | 0.00 | |
| | | | | | | | | 72316.75 |
| JUL | | | | | | | | |
| | 4OFPKKWH | 504 | 323908. | 23288.99 | 1072. | 1072. | 0.00 | |
| | EONPKDMCL | 240 | 379942. | 0.00 | 1972. | 1972. | 18675.21 | |
| | EONPKKWH | 240 | 379942. | 30433.38 | 1972. | 1972. | 0.00 | |
| | | | | | | | | 72397.58 |
| AUG | | | | | | | | |
| | 4OFPKKWH | 468 | 296469. | 21316.14 | 1095. | 1095. | 0.00 | |
| | EONPKDMCL | 276 | 436821. | 0.00 | 1974. | 1974. | 18697.22 | |
| | EONPKKWH | 276 | 436821. | 34989.35 | 1974. | 1974. | 0.00 | |
| | | | | | | | | 75002.72 |
| SEP | | | | | | | | |
| | 4OFPKKWH | 468 | 280414. | 20161.77 | 1066. | 1066. | 0.00 | |
| | EONPKDMCL | 252 | 380386. | 0.00 | 1918. | 1918. | 18167.58 | |
| | EONPKKWH | 252 | 380386. | 30468.90 | 1918. | 1918. | 0.00 | |
| | | | | | | | | 68798.25 |
| OCT | | | | | | | | |
| | 4OFPKKWH | 744 | 539103. | 38761.54 | 1829. | 1829. | 0.00 | |
| | EONPKDMHTG | 240 | 310190. | 0.00 | 1829. | 1829. | 15673.28 | |
| | | | | | | | | 54434.82 |
| NOV | | | | | | | | |
| | 4OFPKKWH | 720 | 462145. | 33228.25 | 1447. | 1447. | 0.00 | |
| | EONPKDMHTG | 240 | 282218. | 0.00 | 1447. | 1447. | 12400.00 | |
| | | | | | | | | 45628.25 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 1/1996 11:18:57 EDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

-CONTINUED-

| MONTH | CHARGE-ASSIGNMENT (U-NAME) | LENGTH (HR/MO) | CONSUMPTION BY C-A (KWH) | ENERGY CHARGE ($) | MEASURED DEMAND (KW) | BILLING DEMAND (KW) | DEMAND CHARGE ($) | TOTAL CHARGES ($) |
|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | |
| | 4OFPKKWH | 744 | 486706. | 34994.19 | 1450. | 1450. | 0.00 | |
| | EONPKDMHTG | 252 | 297287. | 0.00 | 1450. | 1450. | 12428.91 | |
| | | | | | | | | 47423.10 |
| TOTAL | | | 6752735. | 498719.72 | | | 180833.25 | 679553.06 |

ECO-3



| EQUIPMENT | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 4.038 | 1 | 1 | | | | | | | | | | | | | | | |
| HERM-CENT-CHLR | 7.800 | 1 | 1 | | | | | | | | | | | | | | | |
| COOLING-TWR | 2.379 | 4 | 4 | | | | | | | | | | | | | | | |

MODEL OAC
INFILTRATION W/25%
REDUCTION

ON-PEAK USAGE

| EQUIPMENT | HOURS AT PERCENT PART LOAD RATIO | | | | | | | | | | | TOTAL HOURS | ANNUAL LOAD (MBTU) | FALSE LOAD (MBTU) | ELEC USED (MBTU) | THERMAL USED (MBTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 -- 10 | -- 20 | -- 30 | -- 40 | -- 50 | -- 60 | -- 70 | -- 80 | -- 90 | -- 100 | - 110+ | ----- | ------ | ------ | ------ | ------ |
| HW-BOILER | 3062 | 568 | 512 | 430 | 294 | 110 | 62 | 36 | 9 | 4 | 1 | 5088 | 2807.1 | 0.0 | 180.1 | 4064.9 |
| | 3062 | 568 | 512 | 430 | 294 | 110 | 62 | 36 | 9 | 4 | 1 | | | | | |
| HERM-CENT-CHLR | 1071 | 521 | 766 | 463 | 318 | 343 | 166 | 24 | 0 | 0 | 0 | 3672 | 8780.1 | 0.0 | 1989.2 | 0.0 |
| | 1071 | 521 | 766 | 463 | 318 | 343 | 166 | 24 | 0 | 0 | 0 | | | | | |
| COOLING-TWR | 1226 | 601 | 570 | 302 | 134 | 112 | 124 | 124 | 116 | 87 | 276 | 3672 | 10769.3 | 0.0 | 813.8 | 0.0 |
| | 1226 | 601 | 570 | 302 | 134 | 112 | 124 | 124 | 116 | 87 | 276 | | | | | |

HOT LOOP CIRCULATION PUMP ELECTRICAL USE = 151.9 MBTU
COLD LOOP CIRCULATION PUMP ELECTRICAL USE = 924.7 MBTU

NOTES TO TABLE
1) THE FIRST PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE HOURLY OPERATING CAPACITY

2) THE SECOND PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE TOTAL INSTALLED CAPACITY

| HEATING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HW-BOILER | 2807.1 | 100.0 |
| LOAD SATISFIED | 2807.1 | 100.0 |
| TOTAL LOAD ON PLANT | 2807.1 | |

| COOLING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HERM-CENT-CHLR | 8780.1 | 100.0 |
| LOAD SATISFIED | 8780.1 | 100.0 |
| TOTAL LOAD ON PLANT | 8780.1 | |

| ELECTRICAL LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| ELECTRICITY | 23047.1 | 100.0 |
| LOAD SATISFIED | 23047.1 | 100.0 |
| TOTAL LOAD ON PLANT | 23047.5 | |

TOWER ABOVE DESIGN TEMPERATURE OF 85.F   1 HOURS
MAXIMUM TOWER EXIT TEMPERATURE = 85.F

SUMMARY OF LOADS MET

| TYPE OF LOAD | TOTAL LOAD (MBTU) | LOAD SATISFIED (MBTU) | TOTAL OVERLOAD (MBTU) | PEAK OVERLOAD (MBTU) | HOURS OVERLOADED |
|---|---|---|---|---|---|
| HEATING LOADS | 2807.1 | 2807.1 | 0.000 | 0.000 | 0 |
| COOLING LOADS | 8780.1 | 8780.1 | 0.000 | 0.000 | 0 |
| ELECTRICAL LOADS | 23047.5 | 23047.1 | 0.000 | 0.000 | 0 |

| EQUIPMENT | AVG OPER RATIO | MAX LOAD (MBTU) | MON | DAY | HR | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 0.137 | 4.038 | 2 | 20 | 3 | 4.038 | 5088 | | | | | | | | |
| HERM-CENT-CHLR | 0.307 | 7.085 | 8 | 18 | 15 | 7.800 | 3672 | | | | | | | | |
| COOLING-TWR | 0.308 | 8.543 | 6 | 13 | 15 | 2.379 | 14688 | | | | | | | | |

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|---|---|---|
| CATEGORY OF USE | | |
| SPACE HEAT | 180.11 | 4064.88 |
| SPACE COOL | 2802.93 | 0.00 |
| HVAC AUX | 5283.90 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 10258.25 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 4521.26 | 0.00 |
| TOTAL | 23046.46 | 4064.88 |

TOTAL SITE ENERGY 27111.97 MBTU 82.3 KBTU/SQFT-YR GROSS-AREA 82.3 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 73275.33 MBTU 222.4 KBTU/SQFT-YR GROSS-AREA 222.4 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 3.8
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

| MMDDHH | HERM-CEN T-CHLR LOAD BTU/HR ----( 1) | HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----( 3) | HERM-CEN T-CHLR ENTERING COND TEM F ----(12) | HERM-CEN T-CHLR LEAVING COLD TEM F ----(13) | COOLING- TWR WATER FLOWRATE GAL/MIN ----( 8) | COOLING- TWR RANGE R ----(10) | COOLING- TWR FAN ELEC BTU/HR ----(20) | COOLING- TWR PUMP ELEC BTU/HR ----(21) |
|---|---|---|---|---|---|---|---|---|
| MONTHLY SUMMARY (JAN) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (FEB) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (MAR) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (APR) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (MAY) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 6223559. | 1230971. | 80.2 | 56.0 | 1950.0 | 7.7 | 140410. | 90465. |
| SM | 399675968. | 83401216. | 8952.6 | 7242.1 | 257400.0 | 506.1 | 17523364. | 11941428. |
| AV | 1586016. | 330957. | 35.5 | 28.7 | 1021.4 | 2.0 | 69537. | 47387. |
| MONTHLY SUMMARY (JUN) | | | | | | | | |
| MN | 896833. | 378281. | 64.8 | 54.1 | 1950.0 | 1.4 | 117254. | 90465. |
| MX | 7082872. | 1460502. | 83.9 | 56.3 | 1950.0 | 8.8 | 140410. | 90465. |
| SM | 1184410880. | 230279856. | 19148.2 | 14625.9 | 514800.0 | 1471.8 | 36816312. | 23882852. |
| AV | 4486405. | 872272. | 72.5 | 55.4 | 1950.0 | 5.6 | 139456. | 90465. |
| MONTHLY SUMMARY (JUL) | | | | | | | | |
| MN | 1535604. | 433877. | 64.4 | 54.3 | 1950.0 | 2.1 | 133925. | 90465. |
| MX | 6885006. | 1399159. | 82.3 | 56.3 | 1950.0 | 8.6 | 140410. | 90465. |
| SM | 1179970176. | 226407168. | 17793.3 | 13334.4 | 468000.0 | 1461.3 | 33685460. | 21711684. |
| AV | 4916543. | 943363. | 74.1 | 55.6 | 1950.0 | 6.1 | 140356. | 90465. |

| | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | HERM-CEN T-CHLR ENTERING COND TEM F | HERM-CEN T-CHLR LEAVING COLD TEM F | COOLING-TWR WATER FLOWRATE GAL/MIN | COOLING-TWR RANGE R | COOLING-TWR FAN ELEC BTU/HR | COOLING-TWR PUMP ELEC BTU/HR |
|---|---|---|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----(12) | ----(13) | ----( 8) | ----(10) | ----(20) | ----(21) |
| MONTHLY SUMMARY (AUG) | | | | | | | | |
| MN | 825230. | 372638. | 65.0 | 54.1 | 1950.0 | 1.3 | 125451. | 90465. |
| MX | 7084853. | 1452633. | 85.4 | 56.3 | 1950.0 | 8.8 | 140410. | 90465. |
| SM | 1341466752. | 260021408. | 20505.1 | 15328.7 | 538200.1 | 1664.3 | 38699644. | 24968436. |
| AV | 4860387. | 942107. | 74.3 | 55.5 | 1950.0 | 6.0 | 140216. | 90465. |
| MONTHLY SUMMARY (SEP) | | | | | | | | |
| MN | 348085. | 164218. | 64.4 | 53.9 | 1950.0 | 0.6 | 107434. | 90465. |
| MX | 6108622. | 1216208. | 82.2 | 56.0 | 1950.0 | 7.6 | 140410. | 90465. |
| SM | 866196288. | 175526368. | 17387.1 | 13863.9 | 491400.0 | 1088.6 | 34247308. | 22797268. |
| AV | 3437287. | 696533. | 69.0 | 55.0 | 1950.0 | 4.3 | 135902. | 90465. |
| MONTHLY SUMMARY (OCT) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 5008464. | 925952. | 71.0 | 55.6 | 1950.0 | 6.2 | 140410. | 90465. |
| SM | 188528128. | 49286748. | 7055.9 | 5874.4 | 210600.0 | 252.7 | 13638067. | 9770260. |
| AV | 785534. | 205361. | 29.4 | 24.5 | 877.5 | 1.1 | 56825. | 40709. |
| MONTHLY SUMMARY (NOV) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (DEC) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| YEARLY SUMMARY | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 7084853. | 1460502. | 85.4 | 56.3 | 1950.0 | 8.8 | 140410. | 90465. |
| SM | 5160248320. | 1024922816. | 90842.2 | 70269.4 | 2480400.3 | 6444.8 | 174610160. | 115071920. |
| AV | 1706431. | 338930. | 30.0 | 23.2 | 820.2 | 2.1 | 57741. | 38053. |

| MMDDHH | HW-BOILER LOAD BTU/HR | HW-BOILER ELECTRIC USE BTU/HR | HW-BOILER FUEL USE BTU/HR | HW-BOILER CAPACITY RUNNING BTU/HR |
|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----( 4) | ----( 7) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 13382. | 1178. | 20993. | 4038225. |
| MX | 2270410. | 88841. | 2994365. | 4038225. |
| SM | 88794392. | 6561223. | 133078104. | 1017632512. |
| AV | 352359. | 26037. | 528088. | 4038224. |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 13382. | 1178. | 20993. | 4038225. |
| MX | 1250150. | 88841. | 1858722. | 4038225. |
| SM | 31503676. | 2751152. | 49319672. | 920715136. |
| AV | 138174. | 12066. | 216314. | 4038224. |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 13382. | 1178. | 20993. | 4038225. |
| MX | 1219736. | 88841. | 1824115. | 4038225. |
| SM | 28890218. | 2493562. | 45086800. | 1114549888. |
| AV | 104675. | 9035. | 163358. | 4038224. |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 13382. | 1178. | 20993. | 4038225. |
| MX | 697945. | 61419. | 1094918. | 4038225. |
| SM | 10010116. | 880890. | 15703610. | 1017632512. |
| AV | 39723. | 3496. | 62316. | 4038224. |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 153350. | 13495. | 240572. | 4038225. |
| SM | 3387980. | 298142. | 5314975. | 484586912. |
| AV | 13444. | 1183. | 21091. | 1922964. |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |

| | HW-BOILER LOAD BTU/HR ----( 1) | HW-BOILER ELECTRIC USE BTU/HR ----( 3) | HW-BOILER FUEL USE BTU/HR ----( 4) | HW-BOILER CAPACITY RUNNING BTU/HR ----( 7) |
|---|---|---|---|---|
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 125740. | 11065. | 197258. | 4038225. |
| SM | 3920211. | 344979. | 6149925. | 533045600. |
| AV | 16334. | 1437. | 25625. | 2221023. |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 13382. | 1178. | 20993. | 4038225. |
| MX | 876386. | 77122. | 1374852. | 4038225. |
| SM | 17540670. | 1543579. | 27517352. | 969173824. |
| AV | 73086. | 6432. | 114656. | 4038224. |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 13382. | 1178. | 20993. | 4038225. |
| MX | 1373219. | 88841. | 1998314. | 4038225. |
| SM | 56776184. | 4891657. | 88561568. | 1017632512. |
| AV | 225302. | 19411. | 351435. | 4038224. |
| YEARLY SUMMARY | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 2270410. | 88841. | 2994365. | 4038225. |
| SM | 240823456. | 19765184. | 370732000. | 7074969600. |
| AV | 79637. | 6536. | 122597. | 2339606. |

REPORT- EV-B COST OF FUELS AND UTILITIES

| ENERGY SOURCE | ENERGY UNIT (BTU) | UNIFORM COST /UNIT ($) | COST ESCLA-ATION RATE | MIN MNTHLY CHARGE ($) | RATE LIMIT /UNIT ($) | FIXED MNTHLY CHARG1 ($) | FIXED MNTHLY CHARG2 ($) | ASSIGN-SCHEDULE (U-NAME) | ASSIGN-CHARGE1 (U-NAME) | ASSIGN-CHARGE2 (U-NAME) |
|---|---|---|---|---|---|---|---|---|---|---|
| ELECTRIC | 3413.00 | 0.0000 | 5.000 | 0.00 | 1000000.000 | 0.00 | 0.00 | YELEC1 | | |
| FUEL-OIL | 138690.00 | 0.5900 | 5.000 | 0.00 | 1000000.000 | 0.00 | 0.00 | | | |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 1/1996 11: 5: 6 EDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- ES-D SUMMARY OF FUEL AND UTILITY USE AND COSTS

| MONTH | ELECTRIC UNIT= 3413.00 | FUEL-OIL UNIT= 138690.00 |
|---|---|---|
| JAN | | |
| ENERGY CONSUMPTION (UNIT/MO) | 487961. | 7925. |
| PEAK DEMAND (UNIT/HR) | 1455. | 30. |
| TOTAL COST ($) | 47557.54 | 4675.68 |
| FEB | | |
| ENERGY CONSUMPTION (UNIT/MO) | 439306. | 6237. |
| PEAK DEMAND (UNIT/HR) | 1453. | 35. |
| TOTAL COST ($) | 44037.77 | 3680.07 |
| MAR | | |
| ENERGY CONSUMPTION (UNIT/MO) | 503776. | 4040. |
| PEAK DEMAND (UNIT/HR) | 1446. | 20. |
| TOTAL COST ($) | 48611.83 | 2383.83 |
| APR | | |
| ENERGY CONSUMPTION (UNIT/MO) | 469111. | 1157. |
| PEAK DEMAND (UNIT/HR) | 1437. | 16. |
| TOTAL COST ($) | 46045.34 | 682.53 |
| MAY | | |
| ENERGY CONSUMPTION (UNIT/MO) | 568819. | 164. |
| PEAK DEMAND (UNIT/HR) | 1914. | 2. |
| TOTAL COST ($) | 57299.05 | 96.77 |
| JUN | | |
| ENERGY CONSUMPTION (UNIT/MO) | 697866. | 0. |
| PEAK DEMAND (UNIT/HR) | 1981. | 0. |
| TOTAL COST ($) | 72316.75 | 0.00 |
| JUL | | |
| ENERGY CONSUMPTION (UNIT/MO) | 703851. | 0. |
| PEAK DEMAND (UNIT/HR) | 1972. | 0. |
| TOTAL COST ($) | 72397.58 | 0.00 |
| AUG | | |
| ENERGY CONSUMPTION (UNIT/MO) | 733290. | 0. |
| PEAK DEMAND (UNIT/HR) | 1974. | 0. |
| TOTAL COST ($) | 75002.72 | 0.00 |
| SEP | | |
| ENERGY CONSUMPTION (UNIT/MO) | 660800. | 0. |
| PEAK DEMAND (UNIT/HR) | 1918. | 0. |
| TOTAL COST ($) | 68798.25 | 0.00 |
| OCT | | |
| ENERGY CONSUMPTION (UNIT/MO) | 539103. | 229. |
| PEAK DEMAND (UNIT/HR) | 1829. | 5. |
| TOTAL COST ($) | 54434.82 | 135.25 |
| NOV | | |
| ENERGY CONSUMPTION (UNIT/MO) | 462145. | 2814. |
| PEAK DEMAND (UNIT/HR) | 1447. | 19. |
| TOTAL COST ($) | 45628.25 | 1660.25 |
| DEC | | |
| ENERGY CONSUMPTION (UNIT/MO) | 486706. | 6742. |
| PEAK DEMAND (UNIT/HR) | 1450. | 24. |
| TOTAL COST ($) | 47423.10 | 3978.03 |
| TOTAL | | |
| ENERGY CONSUMPTION (UNIT/YR) | 6752735. | 29309. |
| PEAK DEMAND (UNIT/HR) | 1981. | 35. |
| TOTAL COST ($) | 679553.06 | 17292.41 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 1/1996 11: 5: 6 EDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

| MONTH | CHARGE-ASSIGNMENT (U-NAME) | LENGTH (HR/MO) | CONSUMPTION BY C-A (KWH) | ENERGY CHARGE ($) | MEASURED DEMAND (KW) | BILLING DEMAND (KW) | DEMAND CHARGE ($) | TOTAL CHARGES ($) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| | 4OFPKKWH | 744 | 487961. | 35084.43 | 1455. | 1455. | 0.00 | |
| | EONPKDMHTG | 252 | 297777. | 0.00 | 1455. | 1455. | 12473.11 | |
| | | | | | | | | 47557.54 |
| FEB | | | | | | | | |
| | 4OFPKKWH | 672 | 439306. | 31586.13 | 1453. | 1453. | 0.00 | |
| | EONPKDMHTG | 228 | 268484. | 0.00 | 1453. | 1453. | 12451.63 | |
| | | | | | | | | 44037.77 |
| MAR | | | | | | | | |
| | 4OFPKKWH | 744 | 503776. | 36221.48 | 1446. | 1446. | 0.00 | |
| | EONPKDMHTG | 276 | 324761. | 0.00 | 1446. | 1446. | 12390.35 | |
| | | | | | | | | 48611.83 |
| APR | | | | | | | | |
| | 4OFPKKWH | 720 | 469111. | 33729.11 | 1437. | 1437. | 0.00 | |
| | EONPKDMHTG | 252 | 296112. | 0.00 | 1437. | 1437. | 12316.23 | |
| | | | | | | | | 46045.34 |
| MAY | | | | | | | | |
| | 4OFPKKWH | 744 | 568819. | 40898.05 | 1914. | 1914. | 0.00 | |
| | EONPKDMHTG | 252 | 337596. | 0.00 | 1914. | 1914. | 16400.99 | |
| | | | | | | | | 57299.05 |
| JUN | | | | | | | | |
| | 4OFPKKWH | 456 | 285499. | 20527.35 | 1088. | 1088. | 0.00 | |
| | EONPKDMCL | 264 | 412368. | 0.00 | 1981. | 1981. | 18758.73 | |
| | EONPKKWH | 264 | 412368. | 33030.67 | 1981. | 1981. | 0.00 | |
| | | | | | | | | 72316.75 |
| JUL | | | | | | | | |
| | 4OFPKKWH | 504 | 323908. | 23288.99 | 1072. | 1072. | 0.00 | |
| | EONPKDMCL | 240 | 379942. | 0.00 | 1972. | 1972. | 18675.21 | |
| | EONPKKWH | 240 | 379942. | 30433.38 | 1972. | 1972. | 0.00 | |
| | | | | | | | | 72397.58 |
| AUG | | | | | | | | |
| | 4OFPKKWH | 468 | 296469. | 21316.14 | 1095. | 1095. | 0.00 | |
| | EONPKDMCL | 276 | 436821. | 0.00 | 1974. | 1974. | 18697.22 | |
| | EONPKKWH | 276 | 436821. | 34989.35 | 1974. | 1974. | 0.00 | |
| | | | | | | | | 75002.72 |
| SEP | | | | | | | | |
| | 4OFPKKWH | 468 | 280414. | 20161.77 | 1066. | 1066. | 0.00 | |
| | EONPKDMCL | 252 | 380386. | 0.00 | 1918. | 1918. | 18167.58 | |
| | EONPKKWH | 252 | 380386. | 30468.90 | 1918. | 1918. | 0.00 | |
| | | | | | | | | 68798.25 |
| OCT | | | | | | | | |
| | 4OFPKKWH | 744 | 539103. | 38761.54 | 1829. | 1829. | 0.00 | |
| | EONPKDMHTG | 240 | 310190. | 0.00 | 1829. | 1829. | 15673.28 | |
| | | | | | | | | 54434.82 |
| NOV | | | | | | | | |
| | 4OFPKKWH | 720 | 462145. | 33228.25 | 1447. | 1447. | 0.00 | |
| | EONPKDMHTG | 240 | 282218. | 0.00 | 1447. | 1447. | 12400.00 | |
| | | | | | | | | 45628.25 |

REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

CONTINUED

| MONTH | CHARGE-ASSIGNMENT (U-NAME) | LENGTH (HR/MO) | CONSUMPTION BY C-A (KWH) | ENERGY CHARGE ($) | MEASURED DEMAND (KW) | BILLING DEMAND (KW) | DEMAND CHARGE ($) | TOTAL CHARGES ($) |
|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | |
| | 4OFPKKWH | 744 | 486706. | 34994.19 | 1450. | 1450. | 0.00 | |
| | EONPKDMHTG | 252 | 297287. | 0.00 | 1450. | 1450. | 12428.91 | |
| | | | | | | | | 47423.10 |
| TOTAL | | | 6752735. | 498719.72 | | | 180833.25 | 679553.06 |

ECO-3 BBI 25% reduction in Infiltration off-peak

ENTECH ENGINEERING    EZDOE - ELITE SOFTWARE DEVELOPMENT INC    DOE-2.1D  7/ 2/1996  11:24: 2  SDL RUN 1
READING, PA 19603    4130.05 FT. MONMOUTH - MYER CENTER, NJ   FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24
SR_1    * HOURLY-REPORT    PAGE 1- 1

Model BB1
Infiltration w/25%
Reduction

| MMDDHH | 0SSTMDX | 1SSTMDX | 2SSTMDX | 3SSTMDX | 4SSTMDXC LN |
|---|---|---|---|---|---|
| | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW |
| | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) |
| MONTHLY SUMMARY (JAN) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 9049.063 | 3929.703 | 11290.217 | 6589.162 | 24846.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (FEB) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 8166.226 | 3546.317 | 10188.731 | 5946.316 | 22422.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (MAR) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 8607.644 | 3738.010 | 10739.474 | 6267.740 | 23634.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (APR) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 8607.644 | 3738.010 | 10739.475 | 6267.739 | 23634.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (MAY) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 9049.063 | 3929.703 | 11290.217 | 6589.161 | 24846.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (JUN) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 8386.935 | 3642.164 | 10464.104 | 6107.028 | 23028.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (JUL) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 9269.771 | 4025.550 | 11565.588 | 6749.873 | 25452.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |

| | 0SSTMDX | 1SSTMDX | 2SSTMDX | 3SSTMDX | 4SSTMDXC LN |
|---|---|---|---|---|---|
| | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW |
| | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) |
| MONTHLY SUMMARY (AUG) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 8607.644 | 3738.010 | 10739.474 | 6267.739 | 23634.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (SEP) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 8607.644 | 3738.010 | 10739.475 | 6267.740 | 23634.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (OCT) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 9269.771 | 4025.550 | 11565.588 | 6749.873 | 25452.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (NOV) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 8828.353 | 3833.857 | 11014.846 | 6428.450 | 24240.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (DEC) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 9049.062 | 3929.703 | 11290.217 | 6589.162 | 24846.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| YEARLY SUMMARY | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 105498.813 | 45814.586 | 131627.406 | 76819.984 | 289668.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |

REPORT- PV-A EQUIPMENT SIZES　　WEATHER FILE- NEWARK, NJ

| EQUIPMENT | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STM-BOILER | 2.939 | 1 | 1 | | | | | | | | | | | | | | | |
| DHW-HEATER | 0.000 | 1 | 1 | | | | | | | | | | | | | | | |
| HERM-REC-CHLR | 4.552 | 1 | 1 | | | | | | | | | | | | | | | |

| HEATING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| STM-BOILER | 9985.1 | 100.0 |
| DHW-HEATER | 0.0 | 0.0 |
| LOAD SATISFIED | 9985.1 | 100.0 |
| TOTAL LOAD ON PLANT | 9985.1 | |

| COOLING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HERM-REC-CHLR | 15871.3 | 100.0 |
| LOAD SATISFIED | 15871.3 | 100.0 |
| TOTAL LOAD ON PLANT | 15871.3 | |

| ELECTRICAL LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| ELECTRICITY | 21900.3 | 100.0 |
| LOAD SATISFIED | 21900.3 | 100.0 |
| TOTAL LOAD ON PLANT | 21900.3 | |

SUMMARY OF LOADS MET

| TYPE OF LOAD | TOTAL LOAD (MBTU) | LOAD SATISFIED (MBTU) | TOTAL OVERLOAD (MBTU) | PEAK OVERLOAD (MBTU) | HOURS OVERLOADED |
|---|---|---|---|---|---|
| HEATING LOADS | 9985.1 | 9985.1 | 0.000 | 0.000 | 0 |
| COOLING LOADS | 15871.3 | 15871.3 | 0.000 | 0.000 | 0 |
| ELECTRICAL LOADS | 21900.3 | 21900.3 | 0.000 | 0.000 | 0 |

| EQUIPMENT | AVG OPER RATIO | MAX LOAD (MBTU) | MON | DAY | HR | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STM-BOILER | 0.388 | 2.939 | 2 | 20 | 5 | 2.939 | 8760 | | | | | | | | |
| DHW-HEATER | 0.000 | 0.000 | 0 | 0 | 0 | 0.000 | 0 | | | | | | | | |
| HERM-REC-CHLR | 0.398 | 4.552 | 8 | 18 | 16 | 4.552 | 8760 | | | | | | | | |

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL | NATURAL-GAS |
|---|---|---|---|
| CATEGORY OF USE | | | |
| SPACE HEAT | 550.53 | 15151.64 | 0.00 |
| SPACE COOL | 8734.99 | 0.00 | 0.00 |
| HVAC AUX | 4964.14 | 0.00 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 | 0.00 |
| LIGHTS | 3040.82 | 0.00 | 0.00 |
| VERT TRANS | 0.00 | 0.00 | 0.00 |
| MISC EQUIP | 4610.08 | 0.00 | 0.00 |
| TOTAL | 21900.56 | 15151.64 | 0.00 |

TOTAL SITE ENERGY 37051.90 MBTU 313.2 KBTU/SQFT-YR GROSS-AREA 313.2 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 80918.21 MBTU 684.0 KBTU/SQFT-YR GROSS-AREA 684.0 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 0.0
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED
ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

| MMDDHH | HERM-REC -CHLR LOAD BTU/HR | HERM-REC -CHLR ELECTRIC USE BTU/HR | HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR | STM-BOIL ER LOAD BTU/HR | STM-BOIL ER ELECTRIC USE BTU/HR |
|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----(18) | ----( 1) | ----( 3) |
| MONTHLY SUMMARY (JAN) | | | | | |
| MN | 691875. | 553860. | 415125. | 1228144. | 64648. |
| MX | 1776538. | 1006540. | 682813. | 2701256. | 64648. |
| SM | 478364480. | 377932192. | 281947008. | 936999104. | 31806630. |
| AV | 972286. | 768155. | 573063. | 1904470. | 64648. |
| MONTHLY SUMMARY (FEB) | | | | | |
| MN | 632960. | 506556. | 379776. | 1132605. | 64648. |
| MX | 1413205. | 953701. | 682813. | 2938528. | 64648. |
| SM | 438156896. | 346102944. | 258160144. | 855444544. | 28703540. |
| AV | 986840. | 779511. | 581442. | 1926677. | 64648. |
| MONTHLY SUMMARY (MAR) | | | | | |
| MN | 908338. | 727898. | 545003. | 1020715. | 64648. |
| MX | 1901428. | 1024457. | 682813. | 2175210. | 64648. |
| SM | 517894272. | 404728928. | 300986720. | 795071552. | 30255086. |
| AV | 1106612. | 864805. | 643134. | 1698871. | 64648. |
| MONTHLY SUMMARY (APR) | | | | | |
| MN | 937265. | 751183. | 562359. | 751731. | 64648. |
| MX | 2109139. | 1059606. | 682813. | 2051875. | 64648. |
| SM | 629455552. | 438190752. | 316353888. | 617490240. | 30255086. |
| AV | 1344991. | 936305. | 675970. | 1319424. | 64648. |
| MONTHLY SUMMARY (MAY) | | | | | |
| MN | 1090128. | 874349. | 654077. | 702179. | 61792. |
| MX | 2899371. | 1210732. | 682813. | 1576256. | 64648. |
| SM | 789316544. | 485240512. | 335833568. | 501597984. | 31776204. |
| AV | 1604302. | 986261. | 682589. | 1019508. | 64586. |
| MONTHLY SUMMARY (JUN) | | | | | |
| MN | 1384177. | 949434. | 682813. | 699064. | 61518. |
| MX | 3163240. | 1274939. | 682813. | 1043111. | 64648. |
| SM | 927032768. | 482290688. | 311362752. | 363033088. | 29382352. |
| AV | 2032967. | 1057655. | 682813. | 796125. | 64435. |
| MONTHLY SUMMARY (JUL) | | | | | |
| MN | 1542191. | 972581. | 682813. | 701226. | 61708. |
| MX | 3262543. | 1275740. | 682813. | 879275. | 64648. |
| SM | 1128647808. | 551956416. | 344137792. | 380571360. | 32485686. |
| AV | 2239381. | 1095152. | 682813. | 755102. | 64456. |

| | HERM-REC -CHLR LOAD BTU/HR | HERM-REC -CHLR ELECTRIC USE BTU/HR | HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR | STM-BOIL ER LOAD BTU/HR | STM-BOIL ER ELECTRIC USE BTU/HR |
|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----(18) | ----( 1) | ----( 3) |
| MONTHLY SUMMARY (AUG) | | | | | |
| MN | 1432806. | 956579. | 682813. | 653014. | 57465. |
| MX | 3592429. | 1322721. | 682813. | 1000436. | 64648. |
| SM | 1034400000. | 507029920. | 319556512. | 359288448. | 30136386. |
| AV | 2210257. | 1083397. | 682813. | 767710. | 64394. |
| MONTHLY SUMMARY (SEP) | | | | | |
| MN | 1217109. | 924744. | 682813. | 717531. | 63143. |
| MX | 2931510. | 1223276. | 682813. | 1161363. | 64648. |
| SM | 904879552. | 484514816. | 319556512. | 376723680. | 30240616. |
| AV | 1933503. | 1035288. | 682813. | 804965. | 64617. |
| MONTHLY SUMMARY (OCT) | | | | | |
| MN | 1043358. | 836645. | 626015. | 742708. | 64648. |
| MX | 2352478. | 1139826. | 682813. | 1579706. | 64648. |
| SM | 753210816. | 486767168. | 343803584. | 508558848. | 32582402. |
| AV | 1494466. | 965808. | 682150. | 1009045. | 64648. |
| MONTHLY SUMMARY (NOV) | | | | | |
| MN | 892407. | 715077. | 535444. | 729012. | 64153. |
| MX | 2334289. | 1100857. | 682813. | 1910953. | 64648. |
| SM | 593284160. | 435893920. | 319190752. | 661522880. | 31030004. |
| AV | 1236009. | 908112. | 664981. | 1378173. | 64646. |
| MONTHLY SUMMARY (DEC) | | | | | |
| MN | 739836. | 592389. | 443902. | 913630. | 64648. |
| MX | 1539367. | 972169. | 682813. | 2237186. | 64648. |
| SM | 512530048. | 400700064. | 298113696. | 860915136. | 31806628. |
| AV | 1041728. | 814431. | 605922. | 1749828. | 64648. |
| YEARLY SUMMARY | | | | | |
| MN | 632960. | 506556. | 379776. | 653014. | 57465. |
| MX | 3592429. | 1322721. | 682813. | 2938528. | 64648. |
| SM | 8707173376. | 5401348096. | 3749003264. | 7217216512. | 370460608. |
| AV | 1517987. | 941658. | 653592. | 1258232. | 64585. |

ECO-3

BBI Reduced infiltration 25% on-peak

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 10:10:51 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24
SR_1 = HOURLY-REPORT PAGE 1- 1

| MMDDHH | 0SSTMDX | 1SSTMDX | 2SSTMDX | 3SSTMDX | 4SSTMDXC LN |
|---|---|---|---|---|---|
| | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW |
| | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) |
| MONTHLY SUMMARY (JAN) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 4634.884 | 2012.775 | 5782.794 | 3374.935 | 12726.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (FEB) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 4193.466 | 1821.082 | 5232.052 | 3053.513 | 11514.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (MAR) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 5076.302 | 2204.468 | 6333.536 | 3696.357 | 13938.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (APR) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 4634.884 | 2012.775 | 5782.794 | 3374.935 | 12726.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (MAY) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 4634.884 | 2012.775 | 5782.794 | 3374.935 | 12726.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (JUN) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 4855.593 | 2108.621 | 6058.165 | 3535.646 | 13332.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (JUL) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 4414.175 | 1916.928 | 5507.423 | 3214.224 | 12120.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |

MODEL BBI
INFILTRATION W/25% REDUCTION
ON-PEAK USAGE

| | 0SSTMDX | 1SSTMDX | 2SSTMDX | 3SSTMDX | 4SSTMDXC LN |
|---|---|---|---|---|---|
| | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW |
| | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) |
| MONTHLY SUMMARY (AUG) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 5076.302 | 2204.468 | 6333.536 | 3696.357 | 13938.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (SEP) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 4634.884 | 2012.775 | 5782.794 | 3374.935 | 12726.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (OCT) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 4414.175 | 1916.928 | 5507.423 | 3214.224 | 12120.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (NOV) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 4414.175 | 1916.928 | 5507.423 | 3214.224 | 12120.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MONTHLY SUMMARY (DEC) | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 4634.884 | 2012.775 | 5782.794 | 3374.935 | 12726.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| YEARLY SUMMARY | | | | | |
| MN | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| MX | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |
| SM | 55618.609 | 24153.299 | 69393.523 | 40499.219 | 152712.000 |
| AV | 18.392 | 7.987 | 22.948 | 13.393 | 50.500 |

ENTECH ENGINEERING
READING, PA 19603
REPORT- PV-A EQUIPMENT SIZES

EZDOE - ELITE SOFTWARE DEVELOPMENT INC
4130.05 FT. MONMOUTH - MYER CENTER, NJ

DOE-2.1D 7/ 2/1996 10:10:51 PDL RUN 1
FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24
WEATHER FILE- NEWARK, NJ

| E Q U I P M E N T | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STM-BOILER | 2.939 | 1 | 1 | | | | | | | | | | | | | | | |
| DHW-HEATER | 0.000 | 1 | 1 | | | | | | | | | | | | | | | |
| HERM-REC-CHLR | 4.552 | 1 | 1 | | | | | | | | | | | | | | | |

| HEATING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| STM-BOILER | 9985.1 | 100.0 |
| DHW-HEATER | 0.0 | 0.0 |
| LOAD SATISFIED | 9985.1 | 100.0 |
| TOTAL LOAD ON PLANT | 9985.1 | |

| COOLING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HERM-REC-CHLR | 15871.3 | 100.0 |
| LOAD SATISFIED | 15871.3 | 100.0 |
| TOTAL LOAD ON PLANT | 15871.3 | |

| ELECTRICAL LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| ELECTRICITY | 21900.3 | 100.0 |
| LOAD SATISFIED | 21900.3 | 100.0 |
| TOTAL LOAD ON PLANT | 21900.3 | |

SUMMARY OF LOADS MET

| TYPE OF LOAD | TOTAL LOAD (MBTU) | LOAD SATISFIED (MBTU) | TOTAL OVERLOAD (MBTU) | PEAK OVERLOAD (MBTU) | HOURS OVERLOADED |
|---|---|---|---|---|---|
| HEATING LOADS | 9985.1 | 9985.1 | 0.000 | 0.000 | 0 |
| COOLING LOADS | 15871.3 | 15871.3 | 0.000 | 0.000 | 0 |
| ELECTRICAL LOADS | 21900.3 | 21900.3 | 0.000 | 0.000 | 0 |

| E Q U I P M E N T | AVG OPER RATIO | MAX LOAD (MBTU) | MON | DAY | HR | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STM-BOILER | 0.388 | 2.939 | 2 | 20 | 5 | 2.939 | 8760 | | | | | | | | |
| DHW-HEATER | 0.000 | 0.000 | 0 | 0 | 0 | 0.000 | 0 | | | | | | | | |
| HERM-REC-CHLR | 0.398 | 4.552 | 8 | 18 | 16 | 4.552 | 8760 | | | | | | | | |

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL | NATURAL-GAS |
|---|---|---|---|
| CATEGORY OF USE | | | |
| SPACE HEAT | 550.53 | 15151.64 | 0.00 |
| SPACE COOL | 8734.99 | 0.00 | 0.00 |
| HVAC AUX | 4964.14 | 0.00 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 | 0.00 |
| LIGHTS | 3040.82 | 0.00 | 0.00 |
| VERT TRANS | 0.00 | 0.00 | 0.00 |
| MISC EQUIP | 4610.08 | 0.00 | 0.00 |
| TOTAL | 21900.56 | 15151.64 | 0.00 |

TOTAL SITE ENERGY 37051.90 MBTU 313.2 KBTU/SQFT-YR GROSS-AREA 313.2 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 80918.21 MBTU 684.0 KBTU/SQFT-YR GROSS-AREA 684.0 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 0.0
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

| MMDDHH | HERM-REC -CHLR LOAD BTU/HR ----( 1) | HERM-REC -CHLR ELECTRIC USE BTU/HR ----( 3) | HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR ----(18) | STM-BOIL ER LOAD BTU/HR ----( 1) | STM-BOIL ER ELECTRIC USE BTU/HR ----( 3) |
|---|---|---|---|---|---|
| MONTHLY SUMMARY (JAN) | | | | | |
| MN | 1090060. | 874295. | 654036. | 843995. | 64648. |
| MX | 2092040. | 1051559. | 682813. | 2331893. | 64648. |
| SM | 396929760. | 246212368. | 172026960. | 373617344. | 16291196. |
| AV | 1575118. | 977033. | 682647. | 1482609. | 64648. |
| MONTHLY SUMMARY (FEB) | | | | | |
| MN | 1066818. | 855555. | 640091. | 879423. | 64648. |
| MX | 2137164. | 1057932. | 682813. | 2028587. | 64648. |
| SM | 378973952. | 225648704. | 155638624. | 310870944. | 14739654. |
| AV | 1662167. | 989687. | 682626. | 1363469. | 64648. |
| MONTHLY SUMMARY (MAR) | | | | | |
| MN | 1409930. | 953220. | 682813. | 603527. | 53110. |
| MX | 2595265. | 1132922. | 682813. | 1882990. | 64648. |
| SM | 503283328. | 279652096. | 188456384. | 323352768. | 17740418. |
| AV | 1823490. | 1013232. | 682813. | 1171568. | 64277. |
| MONTHLY SUMMARY (APR) | | | | | |
| MN | 1487801. | 964636. | 682813. | 572333. | 50365. |
| MX | 3085316. | 1226198. | 682813. | 1603004. | 64648. |
| SM | 543496640. | 268037312. | 172068864. | 220453056. | 15467528. |
| AV | 2156733. | 1063640. | 682813. | 874814. | 61379. |
| MONTHLY SUMMARY (MAY) | | | | | |
| MN | 1663845. | 990265. | 682813. | 565358. | 49752. |
| MX | 3828865. | 1365767. | 682813. | 1221351. | 64648. |
| SM | 634489920. | 283589248. | 172068864. | 177477984. | 14619943. |
| AV | 2517817. | 1125354. | 682813. | 704278. | 58016. |
| MONTHLY SUMMARY (JUN) | | | | | |
| MN | 2060614. | 1047111. | 682813. | 558144. | 49117. |
| MX | 4349201. | 1502434. | 682813. | 722833. | 63609. |
| SM | 825904000. | 324826144. | 180262624. | 161565600. | 14217774. |
| AV | 3128424. | 1230402. | 682813. | 611991. | 53855. |
| MONTHLY SUMMARY (JUL) | | | | | |
| MN | 2249004. | 1077488. | 682813. | 557458. | 49056. |
| MX | 4166256. | 1432733. | 682813. | 662837. | 58330. |
| SM | 797411840. | 303306304. | 163875104. | 145165008. | 12774517. |
| AV | 3322549. | 1263776. | 682813. | 604854. | 53227. |

| | HERM-REC -CHLR LOAD BTU/HR | HERM-REC -CHLR ELECTRIC USE BTU/HR | HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR | STM-BOIL ER LOAD BTU/HR | STM-BOIL ER ELECTRIC USE BTU/HR |
|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----(18) | ----( 1) | ----( 3) |
| MONTHLY SUMMARY (AUG) | | | | | |
| MN | 2200348. | 1066827. | 682813. | 556143. | 48941. |
| MX | 4552086. | 1491854. | 682813. | 684637. | 60248. |
| SM | 930409472. | 350816256. | 188456384. | 167303344. | 14722696. |
| AV | 3371049. | 1271073. | 682813. | 606172. | 53343. |
| MONTHLY SUMMARY (SEP) | | | | | |
| MN | 1840372. | 1015714. | 682813. | 549405. | 48348. |
| MX | 4068729. | 1368927. | 682813. | 866564. | 64648. |
| SM | 709604608. | 293925536. | 172068864. | 159246352. | 13988820. |
| AV | 2815891. | 1166371. | 682813. | 631930. | 55511. |
| MONTHLY SUMMARY (OCT) | | | | | |
| MN | 1639723. | 986768. | 682813. | 593263. | 52207. |
| MX | 3273143. | 1241670. | 682813. | 1187933. | 64648. |
| SM | 549318592. | 259346032. | 163875104. | 168493280. | 14202739. |
| AV | 2288828. | 1080609. | 682813. | 702055. | 59178. |
| MONTHLY SUMMARY (NOV) | | | | | |
| MN | 1424527. | 955364. | 682813. | 584214. | 51411. |
| MX | 3531256. | 1284191. | 682813. | 1557907. | 64648. |
| SM | 474993984. | 248784352. | 163875104. | 227616032. | 15094358. |
| AV | 1979142. | 1036601. | 682813. | 948400. | 62893. |
| MONTHLY SUMMARY (DEC) | | | | | |
| MN | 1219585. | 925111. | 682813. | 622168. | 54751. |
| MX | 2427751. | 1098571. | 682813. | 1835065. | 64648. |
| SM | 419273440. | 249506352. | 172068864. | 332685888. | 16242543. |
| AV | 1663784. | 990105. | 682813. | 1320182. | 64455. |
| YEARLY SUMMARY | | | | | |
| MN | 1066818. | 855555. | 640091. | 549405. | 48348. |
| MX | 4552086. | 1502434. | 682813. | 2331893. | 64648. |
| SM | 7164089344. | 3333650688. | 2064741632. | 2767847424. | 180102176. |
| AV | 2369077. | 1102398. | 682785. | 915293. | 59558. |

ECO-3

CA3 reduced infiltration 25% off peak

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11:12:21 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
RS_1 = HOURLY-REPORT PAGE 1- 1

Model CA3
Infiltration w/25% Reduction
Off-Peak Usage

| MMDDHH | 1SDXHT | 1SDX | 2SDX | 3SDX | 4SDX | 1SHWONLY | 04SHWELEV | 0SDXHT | 0SDXNOHT |
|---|---|---|---|---|---|---|---|---|---|
| | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW |
| | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) |
| MONTHLY SUMMARY (JAN) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 9939.382 | 5061.797 | 10655.630 | 7269.405 | 26612.115 | 0.384 | 1.919 | 725.307 | 1082.203 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MONTHLY SUMMARY (FEB) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 8969.687 | 4567.963 | 9616.056 | 6560.194 | 24015.811 | 0.346 | 1.732 | 654.545 | 976.622 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MONTHLY SUMMARY (MAR) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 9454.534 | 4814.880 | 10135.844 | 6914.800 | 25313.963 | 0.365 | 1.825 | 689.926 | 1029.413 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MONTHLY SUMMARY (APR) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 9454.534 | 4814.880 | 10135.844 | 6914.800 | 25313.963 | 0.365 | 1.825 | 689.926 | 1029.413 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MONTHLY SUMMARY (MAY) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 9939.382 | 5061.797 | 10655.630 | 7269.404 | 26612.115 | 0.187 | 0.936 | 725.307 | 1082.203 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.002 | 1.474 | 2.200 |
| MONTHLY SUMMARY (JUN) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| SM | 9212.109 | 4691.421 | 9875.950 | 6737.497 | 24664.885 | 0.000 | 0.000 | 672.235 | 1003.018 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MONTHLY SUMMARY (JUL) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| SM | 10181.806 | 5185.255 | 10915.524 | 7446.708 | 27261.189 | 0.000 | 0.000 | 742.997 | 1108.599 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |

| | 1SDXHT | 1SDX | 2SDX | 3SDX | 4SDX | 1SHWONLY | 04SHWELE V | 0SDXHT | 0SDXNOHT |
|---|---|---|---|---|---|---|---|---|---|
| | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW |
| | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) |
| MONTHLY SUMMARY (AUG) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| SM | 9454.534 | 4814.880 | 10135.844 | 6914.799 | 25313.963 | 0.000 | 0.000 | 689.926 | 1029.413 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MONTHLY SUMMARY (SEP) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| SM | 9454.534 | 4814.880 | 10135.844 | 6914.800 | 25313.961 | 0.000 | 0.000 | 689.926 | 1029.413 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MONTHLY SUMMARY (OCT) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 10181.806 | 5185.255 | 10915.524 | 7446.708 | 27261.191 | 0.197 | 0.983 | 742.997 | 1108.598 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.002 | 1.474 | 2.200 |
| MONTHLY SUMMARY (NOV) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 9696.958 | 4938.338 | 10395.737 | 7092.102 | 25963.037 | 0.374 | 1.872 | 707.616 | 1055.808 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MONTHLY SUMMARY (DEC) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 9939.382 | 5061.797 | 10655.631 | 7269.405 | 26612.113 | 0.384 | 1.919 | 725.307 | 1082.203 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| YEARLY SUMMARY | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 115878.648 | 59013.141 | 124229.055 | 84750.625 | 310258.313 | 2.602 | 13.010 | 8456.014 | 12616.906 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.002 | 1.474 | 2.200 |

| E Q U I P M E N T | SIZE (MBTU/H) | NUMBER INSTD | AVAIL | SIZE (MBTU/H) | NUMBER INSTD | AVAIL | SIZE (MBTU/H) | NUMBER INSTD | AVAIL | SIZE (MBTU/H) | NUMBER INSTD | AVAIL | SIZE (MBTU/H) | NUMBER INSTD | AVAIL | SIZE (MBTU/H) | NUMBER INSTD | AVAIL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STM-BOILER | 0.579 | 1 | 1 | | | | | | | | | | | | | | | |
| DHW-HEATER | 0.000 | 1 | 1 | | | | | | | | | | | | | | | |
| HERM-REC-CHLR | 3.892 | 1 | 1 | | | | | | | | | | | | | | | |

| HEATING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| STM-BOILER | 644.6 | 100.0 |
| DHW-HEATER | 0.0 | 0.0 |
| LOAD SATISFIED | 644.6 | 100.0 |
| TOTAL LOAD ON PLANT | 644.6 | |

| COOLING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HERM-REC-CHLR | 16276.7 | 100.0 |
| LOAD SATISFIED | 16276.7 | 100.0 |
| TOTAL LOAD ON PLANT | 16276.7 | |

| ELECTRICAL LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| ELECTRICITY | 26094.1 | 100.0 |
| LOAD SATISFIED | 26094.1 | 100.0 |
| TOTAL LOAD ON PLANT | 26094.1 | |

SUMMARY OF LOADS MET

| TYPE OF LOAD | TOTAL LOAD (MBTU) | LOAD SATISFIED (MBTU) | TOTAL OVERLOAD (MBTU) | PEAK OVERLOAD (MBTU) | HOURS OVERLOADED |
|---|---|---|---|---|---|
| HEATING LOADS | 644.6 | 644.6 | 0.000 | 0.000 | 0 |
| COOLING LOADS | 16276.7 | 16276.7 | 0.027 | 0.018 | 2 |
| ELECTRICAL LOADS | 26094.1 | 26094.1 | 0.000 | 0.000 | 0 |

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL | NATURAL-GAS |
|---|---|---|---|
| CATEGORY OF USE | | | |
| SPACE HEAT | 37.39 | 988.18 | 0.00 |
| SPACE COOL | 7908.28 | 0.00 | 0.00 |
| HVAC AUX | 4941.25 | 0.00 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 | 0.00 |
| LIGHTS | 4983.86 | 0.00 | 0.00 |
| VERT TRANS | 0.00 | 0.00 | 0.00 |
| MISC EQUIP | 8224.01 | 0.00 | 0.00 |
| TOTAL | 26094.79 | 988.18 | 0.00 |

| | | | |
|---|---|---|---|
| TOTAL SITE ENERGY | 27082.28 MBTU | 210.8 KBTU/SQFT-YR GROSS-AREA | 210.8 KBTU/SQFT-YR NET-AREA |
| TOTAL SOURCE ENERGY | 79348.79 MBTU | 617.6 KBTU/SQFT-YR GROSS-AREA | 617.6 KBTU/SQFT-YR NET-AREA |

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 11.6
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

| MMDDHH | HERM-REC -CHLR ELECTRIC USE BTU/HR ----( 3) | HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR ----(18) | STM-BOIL ER ELECTRIC USE BTU/HR ----( 3) | STM-BOIL ER FUEL USE BTU/HR ----( 4) |
|---|---|---|---|---|
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 535361. | 401088. | 1453. | 28067. |
| MX | 876201. | 583796. | 12738. | 752714. |
| SM | 358254432. | 263037744. | 5812172. | 171351728. |
| AV | 728159. | 534630. | 11813. | 348276. |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 527142. | 394952. | 504. | 9743. |
| MX | 875766. | 583796. | 12738. | 751541. |
| SM | 327136096. | 239127616. | 5195205. | 159578688. |
| AV | 736793. | 538576. | 11701. | 359411. |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 631776. | 473001. | 504. | 9743. |
| MX | 900159. | 583796. | 12738. | 572733. |
| SM | 367624640. | 266104240. | 5025957. | 127170360. |
| AV | 785523. | 568599. | 10739. | 271732. |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 661938. | 495478. | 504. | 9743. |
| MX | 923082. | 583796. | 12738. | 499937. |
| SM | 382968384. | 271392160. | 2160246. | 48507240. |
| AV | 818309. | 579898. | 4616. | 103648. |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 743947. | 556541. | 0. | 0. |
| MX | 975469. | 583796. | 12738. | 263479. |
| SM | 413771104. | 287143520. | 379107. | 7338990. |
| AV | 840998. | 583625. | 771. | 14917. |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 798306. | 583796. | 0. | 0. |
| MX | 1003135. | 583796. | 0. | 0. |
| SM | 396264192. | 266210880. | 0. | 0. |
| AV | 869000. | 583796. | 0. | 0. |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 804028. | 583796. | 0. | 0. |
| MX | 992180. | 583796. | 0. | 0. |
| SM | 441250368. | 294233088. | 0. | 0. |
| AV | 875497. | 583796. | 0. | 0. |

| | HERM-REC -CHLR ELECTRIC USE BTU/HR | HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR | STM-BOIL ER ELECTRIC USE BTU/HR | STM-BOIL ER FUEL USE BTU/HR |
|---|---|---|---|---|
| | ----( 3) | ----(18) | ----( 3) | ----( 4) |
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 788823. | 583796. | 0. | 0. |
| MX | 991107. | 583796. | 0. | 0. |
| SM | 405776256. | 273216416. | 0. | 0. |
| AV | 867043. | 583796. | 0. | 0. |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 781980. | 583796. | 0. | 0. |
| MX | 948940. | 583796. | 0. | 0. |
| SM | 397793312. | 273216416. | 0. | 0. |
| AV | 849986. | 583796. | 0. | 0. |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 683149. | 511279. | 0. | 0. |
| MX | 907671. | 583796. | 12738. | 331199. |
| SM | 415276384. | 293634560. | 641723. | 12790114. |
| AV | 823961. | 582608. | 1273. | 25377. |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 626375. | 468976. | 504. | 9743. |
| MX | 922674. | 583796. | 12738. | 526275. |
| SM | 380792512. | 274897728. | 3636822. | 83659400. |
| AV | 793318. | 572704. | 7577. | 174290. |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 546128. | 409124. | 504. | 9743. |
| MX | 885942. | 583796. | 12738. | 580262. |
| SM | 370277664. | 270221984. | 5661317. | 163917632. |
| AV | 752597. | 549232. | 11507. | 333166. |
| YEARLY SUMMARY | | | | |
| MN | 527142. | 394952. | 0. | 0. |
| MX | 1003135. | 583796. | 12738. | 752714. |
| SM | 4657185792. | 3272436736. | 28512548. | 774314176. |
| AV | 811922. | 570509. | 4971. | 134992. |

ECO-3

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 10:31:40 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
RS_1 = HOURLY-REPORT PAGE 1- 1

Model BBI Infiltration w/25% Reduction On-Peak Usage

| MMDDHH | 1SDXHT | 1SDX | 2SDX | 3SDX | 4SDX | 1SHWONLY | 04SHWELEV | 0SDXHT | 0SDXNOHT |
|---|---|---|---|---|---|---|---|---|---|
| | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW |
| | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) |
| MONTHLY SUMMARY (JAN) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 5090.904 | 2592.626 | 5457.761 | 3723.353 | 13630.595 | 0.197 | 0.983 | 371.498 | 554.299 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MONTHLY SUMMARY (FEB) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 4606.056 | 2345.709 | 4937.974 | 3368.748 | 12332.442 | 0.178 | 0.889 | 336.118 | 501.509 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MONTHLY SUMMARY (MAR) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 5575.751 | 2839.543 | 5977.548 | 4077.958 | 14928.747 | 0.215 | 1.076 | 406.879 | 607.090 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MONTHLY SUMMARY (APR) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 5090.904 | 2592.626 | 5457.761 | 3723.353 | 13630.595 | 0.197 | 0.983 | 371.498 | 554.299 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MONTHLY SUMMARY (MAY) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 5090.904 | 2592.626 | 5457.761 | 3723.353 | 13630.595 | 0.094 | 0.468 | 371.498 | 554.299 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.002 | 1.474 | 2.200 |
| MONTHLY SUMMARY (JUN) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| SM | 5333.328 | 2716.085 | 5717.655 | 3900.655 | 14279.671 | 0.000 | 0.000 | 389.189 | 580.694 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MONTHLY SUMMARY (JUL) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| SM | 4848.480 | 2469.168 | 5197.868 | 3546.050 | 12981.519 | 0.000 | 0.000 | 353.808 | 527.904 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |

| | 1SDXHT | 1SDX | 2SDX | 3SDX | 4SDX | 1SHWONLY | 04SHWELEV | 0SDXHT | 0SDXNOHT |
|---|---|---|---|---|---|---|---|---|---|
| | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW | TOT FAN ELECTRIC KW |
| | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) | ----(33) |
| MONTHLY SUMMARY (AUG) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| SM | 5575.751 | 2839.543 | 5977.548 | 4077.958 | 14928.747 | 0.000 | 0.000 | 406.879 | 607.090 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MONTHLY SUMMARY (SEP) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| SM | 5090.904 | 2592.626 | 5457.761 | 3723.353 | 13630.595 | 0.000 | 0.000 | 371.498 | 554.299 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MONTHLY SUMMARY (OCT) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 4848.480 | 2469.168 | 5197.868 | 3546.050 | 12981.519 | 0.103 | 0.515 | 353.808 | 527.904 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.002 | 1.474 | 2.200 |
| MONTHLY SUMMARY (NOV) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 4848.480 | 2469.168 | 5197.868 | 3546.050 | 12981.519 | 0.187 | 0.936 | 353.808 | 527.904 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MONTHLY SUMMARY (DEC) | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 5090.904 | 2592.626 | 5457.761 | 3723.353 | 13630.595 | 0.197 | 0.983 | 371.498 | 554.299 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| YEARLY SUMMARY | | | | | | | | | |
| MN | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.000 | 1.474 | 2.200 |
| MX | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.001 | 0.004 | 1.474 | 2.200 |
| SM | 61090.844 | 31111.520 | 65493.133 | 44680.230 | 163567.141 | 1.367 | 6.833 | 4457.981 | 6651.591 |
| AV | 20.202 | 10.288 | 21.658 | 14.775 | 54.090 | 0.000 | 0.002 | 1.474 | 2.200 |

| E Q U I P M E N T | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STM-BOILER | 0.579 | 1 | 1 | | | | | | | | | | | | | | | |
| DHW-HEATER | 0.000 | 1 | 1 | | | | | | | | | | | | | | | |
| HERM-REC-CHLR | 3.892 | 1 | 1 | | | | | | | | | | | | | | | |

| HEATING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| STM-BOILER | 644.6 | 100.0 |
| DHW-HEATER | 0.0 | 0.0 |
| LOAD SATISFIED | 644.6 | 100.0 |
| TOTAL LOAD ON PLANT | 644.6 | |

| COOLING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HERM-REC-CHLR | 16276.7 | 100.0 |
| LOAD SATISFIED | 16276.7 | 100.0 |
| TOTAL LOAD ON PLANT | 16276.7 | |

| ELECTRICAL LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| ELECTRICITY | 26094.1 | 100.0 |
| LOAD SATISFIED | 26094.1 | 100.0 |
| TOTAL LOAD ON PLANT | 26094.1 | |

SUMMARY OF LOADS MET

| TYPE OF LOAD | TOTAL LOAD (MBTU) | LOAD SATISFIED (MBTU) | TOTAL OVERLOAD (MBTU) | PEAK OVERLOAD (MBTU) | HOURS OVERLOADED |
|---|---|---|---|---|---|
| HEATING LOADS | 644.6 | 644.6 | 0.000 | 0.000 | 0 |
| COOLING LOADS | 16276.7 | 16276.7 | 0.027 | 0.018 | 2 |
| ELECTRICAL LOADS | 26094.1 | 26094.1 | 0.000 | 0.000 | 0 |

REPORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE WEATHER FILE- NEWARK, NJ

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL | NATURAL-GAS |
|---|---|---|---|
| CATEGORY OF USE | | | |
| SPACE HEAT | 37.39 | 988.18 | 0.00 |
| SPACE COOL | 7908.28 | 0.00 | 0.00 |
| HVAC AUX | 4941.25 | 0.00 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 | 0.00 |
| LIGHTS | 4983.86 | 0.00 | 0.00 |
| VERT TRANS | 0.00 | 0.00 | 0.00 |
| MISC EQUIP | 8224.01 | 0.00 | 0.00 |
| TOTAL | 26094.79 | 988.18 | 0.00 |

TOTAL SITE ENERGY 27082.28 MBTU 210.8 KBTU/SQFT-YR GROSS-AREA 210.8 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 79348.79 MBTU 617.6 KBTU/SQFT-YR GROSS-AREA 617.6 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 11.6
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED
ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

| MMDDHH | HERM-REC -CHLR ELECTRIC USE BTU/HR | HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR | STM-BOIL ER ELECTRIC USE BTU/HR | STM-BOIL ER FUEL USE BTU/HR |
|---|---|---|---|---|
| | ----( 3) | ----(18) | ----( 3) | ----( 4) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 937605. | 583796. | 504. | 9743. |
| MX | 1082899. | 583796. | 12738. | 743884. |
| SM | 256205232. | 147116464. | 2096942. | 59470712. |
| AV | 1016687. | 583796. | 8321. | 235995. |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 928071. | 583796. | 504. | 9743. |
| MX | 1088467. | 583796. | 12738. | 507220. |
| SM | 233673600. | 133105368. | 1585027. | 35263052. |
| AV | 1024884. | 583796. | 6952. | 154663. |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 957016. | 583796. | 504. | 9743. |
| MX | 1122546. | 583796. | 12738. | 512098. |
| SM | 287182592. | 161127568. | 1530656. | 35519956. |
| AV | 1040517. | 583796. | 5546. | 128695. |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 966029. | 583796. | 504. | 9743. |
| MX | 1183155. | 583796. | 12738. | 355173. |
| SM | 268408896. | 147116464. | 477441. | 9757922. |
| AV | 1065115. | 583796. | 1895. | 38722. |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 985677. | 583796. | 0. | 0. |
| MX | 1238328. | 583796. | 4407. | 85109. |
| SM | 275527424. | 147116464. | 78084. | 1508007. |
| AV | 1093363. | 583796. | 310. | 5984. |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 1016320. | 583796. | 0. | 0. |
| MX | 1304448. | 583796. | 0. | 0. |
| SM | 298948832. | 154122016. | 0. | 0. |
| AV | 1132382. | 583796. | 0. | 0. |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 1026370. | 583796. | 0. | 0. |
| MX | 1258694. | 583796. | 0. | 0. |
| SM | 274606400. | 140110912. | 0. | 0. |
| AV | 1144193. | 583795. | 0. | 0. |

| | HERM-REC -CHLR ELECTRIC USE BTU/HR | HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR | STM-BOIL ER ELECTRIC USE BTU/HR | STM-BOIL ER FUEL USE BTU/HR |
|---|---|---|---|---|
| | ----( 3) | ----(18) | ----( 3) | ----( 4) |
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 1013925. | 583796. | 0. | 0. |
| MX | 1280765. | 583796. | 0. | 0. |
| SM | 315750784. | 161127568. | 0. | 0. |
| AV | 1144025. | 583796. | 0. | 0. |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 993271. | 583796. | 0. | 0. |
| MX | 1207949. | 583796. | 0. | 0. |
| SM | 276855072. | 147116464. | 0. | 0. |
| AV | 1098631. | 583796. | 0. | 0. |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 975607. | 583796. | 0. | 0. |
| MX | 1167410. | 583796. | 8246. | 159243. |
| SM | 255514720. | 140110912. | 124763. | 2409484. |
| AV | 1064645. | 583795. | 520. | 10040. |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 963000. | 583796. | 504. | 9743. |
| MX | 1164715. | 583796. | 12738. | 428717. |
| SM | 250589440. | 140110912. | 926197. | 19805388. |
| AV | 1044123. | 583795. | 3859. | 82522. |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 945033. | 583796. | 504. | 9743. |
| MX | 1107379. | 583796. | 12738. | 563442. |
| SM | 257862176. | 147116464. | 2059144. | 50143764. |
| AV | 1023263. | 583796. | 8171. | 198983. |
| YEARLY SUMMARY | | | | |
| MN | 928071. | 583796. | 0. | 0. |
| MX | 1304448. | 583796. | 12738. | 743884. |
| SM | 3251125248. | 1765397376. | 8878254. | 213878272. |
| AV | 1075108. | 583795. | 2936. | 70727. |

ECO-8

ENTECH ENGINEERING    EZDOE - ELITE SOFTWARE DEVELOPMENT INC    DOE-2.1D 6/17/1996 22:49: 3 PDL RUN 1
READING, PA 19603    4130.05 FT. MONMOUTH - MYER CENTER, NJ    FTMOAC0 - SIM MCA H2O ONLY W/OA SCHD1
REPORT- PS-H EQUIPMENT USE STATISTICS    WEATHER FILE- NEWARK, NJ

| EQUIPMENT | AVG OPER RATIO | MAX LOAD (MBTU) | MON DAY HR | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 0.147 | 4.712 | 2 20 3 | 4.712 | 5088 | | | | | | | | |
| HERM-CENT-CHLR | 0.307 | 7.282 | 8 18 15 | 7.800 | 3672 | | | | | | | | |
| COOLING-TWR | 0.306 | 8.784 | 8 18 15 | 2.400 | 14688 | | | | | | | | |

TOWER FAN
ON-PEAK USAGE

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/17/1996 22:49: 3 PDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE WEATHER FILE- NEWARK, NJ

---

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|---|---|---|
| CATEGORY OF USE | | |
| SPACE HEAT | 229.01 | 5128.55 |
| SPACE COOL | 2659.66 | 0.00 |
| HVAC AUX | 5352.53 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 10258.61 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 4521.42 | 0.00 |
| TOTAL | 23021.24 | 5128.55 |

TOTAL SITE ENERGY 28149.62 MBTU 85.4 KBTU/SQFT-YR GROSS-AREA 85.4 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 74261.00 MBTU 225.4 KBTU/SQFT-YR GROSS-AREA 225.4 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 3.7
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED
ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

| MMDDHH | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | COOLING- TWR FAN ELEC BTU/HR | COOLING- TWR PUMP ELEC BTU/HR |
|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----(20) | ----(21) |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 302722. | 142762. | 15251. | 90465. |
| MX | 6348487. | 1258375. | 141426. | 90465. |
| SM | 392043168. | 81835792. | 12712080. | 11941428. |
| AV | 2970024. | 619968. | 96304. | 90465. |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 830509. | 372988. | 16700. | 90465. |
| MX | 7271629. | 1507925. | 141426. | 90465. |
| SM | 1194551552. | 232249792. | 35530404. | 23882852. |
| AV | 4524817. | 879734. | 134585. | 90465. |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 1498392. | 430245. | 94161. | 90465. |
| MX | 7050099. | 1439141. | 141426. | 90465. |
| SM | 1191595264. | 228490976. | 33845808. | 21711684. |
| AV | 4964981. | 952046. | 141024. | 90465. |
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 815628. | 371830. | 32452. | 90465. |
| MX | 7281769. | 1502584. | 141426. | 90465. |
| SM | 1354552192. | 262494784. | 38635008. | 24968436. |
| AV | 4907798. | 951068. | 139982. | 90465. |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 355402. | 167667. | 15417. | 90465. |
| MX | 6235474. | 1243838. | 141426. | 90465. |
| SM | 863843136. | 175046640. | 28207500. | 22797268. |
| AV | 3427949. | 694630. | 111935. | 90465. |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 357490. | 168654. | 15424. | 90465. |
| MX | 5014499. | 925695. | 141426. | 90465. |
| SM | 179807184. | 47662560. | 6271389. | 9770260. |
| AV | 1664881. | 441320. | 58068. | 90465. |
| YEARLY SUMMARY | | | | |
| MN | 302722. | 142762. | 15251. | 90465. |
| MX | 7281769. | 1507925. | 141426. | 90465. |
| SM | 5176392704. | 1027780480. | 155202192. | 115071920. |
| AV | 4069491. | 808004. | 122014. | 90465. |

ECO-8



| E Q U I P M E N T | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 4.712 | 1 | 1 | | | | | | | | | | | | | | | |
| HERM-CENT-CHLR | 7.800 | 1 | 1 | | | | | | | | | | | | | | | |
| COOLING-TWR | 2.400 | 4 | 4 | | | | | | | | | | | | | | | |

TOWER FAN
Off-PEAK USAGE

| EQUIPMENT | HOURS AT PERCENT PART LOAD RATIO | | | | | | | | | | | TOTAL HOURS | ANNUAL LOAD (MBTU) | FALSE LOAD (MBTU) | ELEC USED (MBTU) | THERMAL USED (MBTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 -- 10 | -- 20 | -- 30 | -- 40 | -- 50 | -- 60 | -- 70 | -- 80 | -- 90 | -- 100 | - 110+ | ----- | ------ | ------ | ------ | ------ |
| HW-BOILER | 2851 | 617 | 617 | 459 | 307 | 134 | 57 | 32 | 9 | 4 | 1 | 5088 | 3532.8 | 0.0 | 229.0 | 5128.5 |
| | 2851 | 617 | 617 | 459 | 307 | 134 | 57 | 32 | 9 | 4 | 1 | | | | | |
| HERM-CENT-CHLR | 1092 | 504 | 749 | 469 | 313 | 339 | 170 | 36 | 0 | 0 | 0 | 3672 | 8802.2 | 0.0 | 1986.8 | 0.0 |
| | 1092 | 504 | 749 | 469 | 313 | 339 | 170 | 36 | 0 | 0 | 0 | | | | | |
| COOLING-TWR | 1170 | 657 | 551 | 317 | 141 | 109 | 119 | 125 | 111 | 87 | 285 | 3672 | 10789.1 | 0.0 | 672.8 | 0.0 |
| | 1170 | 657 | 551 | 317 | 141 | 109 | 119 | 125 | 111 | 87 | 285 | | | | | |

HOT LOOP CIRCULATION PUMP ELECTRICAL USE = 177.2 MBTU
COLD LOOP CIRCULATION PUMP ELECTRICAL USE = 950.4 MBTU

NOTES TO TABLE

1) THE FIRST PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE HOURLY OPERATING CAPACITY

2) THE SECOND PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE TOTAL INSTALLED CAPACITY

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/17/1996 21:21:25 PDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- PS-D PLANT LOADS SATISFIED WEATHER FILE- NEWARK, NJ

| HEATING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HW-BOILER | 3532.8 | 100.0 |
| LOAD SATISFIED | 3532.8 | 100.0 |
| TOTAL LOAD ON PLANT | 3532.8 | |

| COOLING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HERM-CENT-CHLR | 8802.2 | 100.0 |
| LOAD SATISFIED | 8802.2 | 100.0 |
| TOTAL LOAD ON PLANT | 8802.2 | |

| ELECTRICAL LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| ELECTRICITY | 23021.1 | 100.0 |
| LOAD SATISFIED | 23021.1 | 100.0 |
| TOTAL LOAD ON PLANT | 23020.8 | |

TOWER ABOVE DESIGN TEMPERATURE OF 85.F 1 HOURS
MAXIMUM TOWER EXIT TEMPERATURE = 86.F

SUMMARY OF LOADS MET

| TYPE OF LOAD | TOTAL LOAD (MBTU) | LOAD SATISFIED (MBTU) | TOTAL OVERLOAD (MBTU) | PEAK OVERLOAD (MBTU) | HOURS OVERLOADED |
|---|---|---|---|---|---|
| HEATING LOADS | 3532.8 | 3532.8 | 0.000 | 0.000 | 0 |
| COOLING LOADS | 8802.2 | 8802.2 | 0.000 | 0.000 | 0 |
| ELECTRICAL LOADS | 23020.8 | 23021.1 | 0.000 | 0.000 | 0 |

REPORT- PS-H EQUIPMENT USE STATISTICS WEATHER FILE- NEWARK, NJ

| E Q U I P M E N T | AVG OPER RATIO | MAX LOAD (MBTU) | MON | DAY | HR | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 0.147 | 4.712 | 2 | 20 | 3 | 4.712 | 5088 | | | | | | | | |
| HERM-CENT-CHLR | 0.307 | 7.282 | 8 | 18 | 15 | 7.800 | 3672 | | | | | | | | |
| COOLING-TWR | 0.306 | 8.784 | 8 | 18 | 15 | 2.400 | 14688 | | | | | | | | |

REPORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE WEATHER FILE- NEWARK, NJ

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|---|---|---|
| CATEGORY OF USE | | |
| SPACE HEAT | 229.01 | 5128.55 |
| SPACE COOL | 2659.66 | 0.00 |
| HVAC AUX | 5352.53 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 10258.61 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 4521.42 | 0.00 |
| TOTAL | 23021.24 | 5128.55 |

TOTAL SITE ENERGY 28149.62 MBTU 85.4 KBTU/SQFT-YR GROSS-AREA 85.4 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 74261.00 MBTU 225.4 KBTU/SQFT-YR GROSS-AREA 225.4 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 3.7
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED
ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

| MMDDHH | HERM-CEN T-CHLR LOAD BTU/HR ----( 1) | HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----( 3) | COOLING- TWR FAN ELEC BTU/HR ----(20) | COOLING- TWR PUMP ELEC BTU/HR ----(21) |
|---|---|---|---|---|
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 302722. | 142762. | 15251. | 90465. |
| MX | 5349443. | 1003505. | 141426. | 90465. |
| SM | 200589872. | 67524968. | 8439609. | 22797268. |
| AV | 795992. | 267956. | 33491. | 90465. |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 302722. | 142762. | 15251. | 90465. |
| MX | 4387579. | 852452. | 141426. | 90465. |
| SM | 799004608. | 201814432. | 41061692. | 41252200. |
| AV | 1752203. | 442576. | 90048. | 90465. |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 302722. | 142762. | 16165. | 90465. |
| MX | 4323691. | 845941. | 141426. | 90465. |
| SM | 1085108224. | 256985568. | 55622060. | 45594536. |
| AV | 2152993. | 509892. | 110361. | 90465. |
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 302722. | 142762. | 15419. | 90465. |
| MX | 4581775. | 923552. | 141426. | 90465. |
| SM | 870181440. | 218158096. | 44604648. | 42337780. |
| AV | 1859362. | 466150. | 95309. | 90465. |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 302722. | 142762. | 15251. | 90465. |
| MX | 3330085. | 669181. | 141426. | 90465. |
| SM | 558887744. | 166953456. | 29791260. | 42337784. |
| AV | 1194205. | 356738. | 63657. | 90465. |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 302722. | 142762. | 15251. | 90465. |
| MX | 2663557. | 566678. | 141426. | 90465. |
| SM | 112066016. | 47639172. | 5857014. | 22797272. |
| AV | 444706. | 189044. | 23242. | 90465. |
| YEARLY SUMMARY | | | | |
| MN | 302722. | 142762. | 15251. | 90465. |
| MX | 5349443. | 1003505. | 141426. | 90465. |
| SM | 3625837824. | 959075712. | 185376272. | 217116832. |
| AV | 1510766. | 399615. | 77240. | 90465. |

ECO-8



Hourly
Single Speed
Results

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|---|---|---|
| CATEGORY OF USE | | |
| SPACE HEAT | 229.01 | 5128.55 |
| SPACE COOL | 2803.02 | 0.00 |
| HVAC AUX | 5352.51 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 10258.58 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 4521.41 | 0.00 |
| TOTAL | 23164.53 | 5128.55 |

TOTAL SITE ENERGY 28292.98 MBTU 85.9 KBTU/SQFT-YR GROSS-AREA 85.9 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 74691.53 MBTU 226.7 KBTU/SQFT-YR GROSS-AREA 226.7 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 3.7
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

| MMDDHH | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | COOLING-TWR LOAD BTU/HR | COOLING-TWR SIZES RUNNING | COOLING-TWR MINIMUM CELL NO. | COOLING-TWR TOWER TEMP F | COOLING-TWR FAN ELEC BTU/HR | COOLING-TWR PUMP ELEC BTU/HR | COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT. |
|---|---|---|---|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----( 1) | ----( 6) | ----( 9) | ----(19) | ----(20) | ----(21) | ----(23) |
| 525 1 | 618332. | 292245. | 910577. | 4. | 4. | 65.0 | 113321. | 90465. | 0.8013 |
| 525 2 | 411510. | 194213. | 605723. | 4. | 4. | 65.0 | 109160. | 90465. | 0.7718 |
| 525 3 | 437646. | 206585. | 644231. | 4. | 4. | 65.0 | 109710. | 90465. | 0.7757 |
| 525 4 | 459344. | 216860. | 676205. | 4. | 4. | 65.0 | 110161. | 90465. | 0.7789 |
| 525 5 | 431755. | 203796. | 635551. | 4. | 4. | 65.0 | 109586. | 90465. | 0.7749 |
| 525 6 | 631318. | 298410. | 929728. | 4. | 4. | 65.0 | 113568. | 90465. | 0.8030 |
| 525 7 | 1706845. | 450241. | 2157086. | 4. | 4. | 65.0 | 126525. | 90465. | 0.8946 |
| 525 8 | 2762013. | 567236. | 3329249. | 4. | 4. | 65.0 | 134911. | 90465. | 0.9539 |
| 525 9 | 3854814. | 716778. | 4571592. | 4. | 4. | 65.0 | 141038. | 90465. | 0.9973 |
| 52510 | 4301003. | 786343. | 5087345. | 4. | 4. | 65.1 | 141426. | 90465. | 1.0000 |
| 52511 | 4666796. | 847285. | 5514080. | 4. | 4. | 65.8 | 141426. | 90465. | 1.0000 |
| 52512 | 4869973. | 884564. | 5754538. | 4. | 4. | 66.3 | 141426. | 90465. | 1.0000 |
| 52513 | 5409071. | 984728. | 6393799. | 4. | 4. | 68.6 | 141426. | 90465. | 1.0000 |
| 52514 | 4793663. | 879746. | 5673409. | 4. | 4. | 67.3 | 141426. | 90465. | 1.0000 |
| 52515 | 4132488. | 765379. | 4897868. | 4. | 4. | 64.7 | 141426. | 90465. | 1.0000 |
| 52516 | 3212557. | 624823. | 3837380. | 4. | 4. | 65.0 | 139695. | 90465. | 0.9878 |
| 52517 | 2672214. | 556242. | 3228457. | 4. | 4. | 65.0 | 138876. | 90465. | 0.9820 |
| 52518 | 2226339. | 504528. | 2730867. | 4. | 4. | 65.0 | 138668. | 90465. | 0.9805 |
| 52519 | 1382371. | 419556. | 1801927. | 4. | 4. | 65.0 | 132897. | 90465. | 0.9397 |
| 52520 | 1186833. | 402250. | 1589082. | 4. | 4. | 65.0 | 131311. | 90465. | 0.9285 |
| 52521 | 1013197. | 387625. | 1400821. | 4. | 4. | 65.0 | 126306. | 90465. | 0.8931 |
| 52522 | 848518. | 374397. | 1222915. | 4. | 4. | 65.0 | 124635. | 90465. | 0.8813 |
| 52523 | 762992. | 360986. | 1123978. | 4. | 4. | 65.0 | 123661. | 90465. | 0.8744 |
| 52524 | 654281. | 309315. | 963596. | 4. | 4. | 65.0 | 114002. | 90465. | 0.8061 |
| DAILY SUMMARY (MAY 25) | | | | | | | | | |
| MN | 411510. | 194213. | 605723. | 4. | 4. | 64.7 | 109160. | 90465. | 0.7718 |
| MX | 5409071. | 984728. | 6393799. | 4. | 4. | 68.6 | 141426. | 90465. | 1.0000 |
| SM | 53445864. | 12234129. | 65680004. | 96. | 96. | 1567.8 | 3086590. | 2171169. | 21.8247 |
| AV | 2226911. | 509755. | 2736667. | 4. | 4. | 65.3 | 128608. | 90465. | 0.9094 |

| | HERM-CEN T-CHLR LOAD BTU/HR ----( 1) | HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----( 3) | COOLING- TWR LOAD BTU/HR ----( 1) | COOLING- TWR SIZES RUNNING ----( 6) | COOLING- TWR MINIMUM CELL NO. ----( 9) | COOLING- TWR TOWER TEMP F ----(19) | COOLING- TWR FAN ELEC BTU/HR ----(20) | COOLING- TWR PUMP ELEC BTU/HR ----(21) | COOLING- TWR FRAC HR FANS RUN FRAC.OR MULT. ----(23) |
|---|---|---|---|---|---|---|---|---|---|
| 526 1 | 624341. | 295098. | 919438. | 4. | 4. | 65.0 | 113436. | 90465. | 0.8021 |
| 526 2 | 578325. | 273260. | 851585. | 4. | 4. | 65.0 | 112549. | 90465. | 0.7958 |
| 526 3 | 470532. | 222160. | 692692. | 4. | 4. | 65.0 | 110392. | 90465. | 0.7806 |
| 526 4 | 427352. | 201711. | 629063. | 4. | 4. | 65.0 | 109494. | 90465. | 0.7742 |
| 526 5 | 436795. | 206182. | 642977. | 4. | 4. | 65.0 | 109692. | 90465. | 0.7756 |
| 526 6 | 838944. | 373647. | 1212591. | 4. | 4. | 65.0 | 124535. | 90465. | 0.8806 |
| 526 7 | 3627962. | 683317. | 4311280. | 4. | 4. | 68.7 | 141426. | 90465. | 1.0000 |
| 526 8 | 4515940. | 832542. | 5348482. | 4. | 4. | 72.3 | 141426. | 90465. | 1.0000 |
| 526 9 | 4959050. | 925133. | 5884183. | 4. | 4. | 74.5 | 141426. | 90465. | 1.0000 |
| 52610 | 5139727. | 970342. | 6110069. | 4. | 4. | 75.6 | 141426. | 90465. | 1.0000 |
| 52611 | 5441774. | 1035158. | 6476932. | 4. | 4. | 76.8 | 141426. | 90465. | 1.0000 |
| 52612 | 5838525. | 1124508. | 6963033. | 4. | 4. | 78.2 | 141426. | 90465. | 1.0000 |
| 52613 | 6225351. | 1218847. | 7444198. | 4. | 4. | 79.6 | 141426. | 90465. | 1.0000 |
| 52614 | 6348487. | 1258375. | 7606862. | 4. | 4. | 79.8 | 141426. | 90465. | 1.0000 |
| 52615 | 6132609. | 1211687. | 7344296. | 4. | 4. | 80.3 | 141426. | 90465. | 1.0000 |
| 52616 | 5372993. | 1054609. | 6427603. | 4. | 4. | 79.1 | 141426. | 90465. | 1.0000 |
| 52617 | 4961285. | 965807. | 5927092. | 4. | 4. | 77.7 | 141426. | 90465. | 1.0000 |
| 52618 | 4347851. | 846228. | 5194078. | 4. | 4. | 76.9 | 141426. | 90465. | 1.0000 |
| 52619 | 3761942. | 745937. | 4507880. | 4. | 4. | 76.2 | 141426. | 90465. | 1.0000 |
| 52620 | 3355095. | 681606. | 4036701. | 4. | 4. | 76.0 | 140809. | 90465. | 0.9956 |
| 52621 | 3099357. | 644638. | 3743995. | 4. | 4. | 75.0 | 140207. | 90465. | 0.9914 |
| 52622 | 3000988. | 627077. | 3628066. | 4. | 4. | 75.0 | 139680. | 90465. | 0.9877 |
| 52623 | 2668355. | 583710. | 3252065. | 4. | 4. | 74.0 | 138604. | 90465. | 0.9800 |
| 52624 | 2508545. | 560278. | 3068822. | 4. | 4. | 74.0 | 137656. | 90465. | 0.9733 |
| DAILY SUMMARY (MAY 26) | | | | | | | | | |
| MN | 427352. | 201711. | 629063. | 4. | 4. | 65.0 | 109494. | 90465. | 0.7742 |
| MX | 6348487. | 1258375. | 7606862. | 4. | 4. | 80.3 | 141426. | 90465. | 1.0000 |
| SM | 84682128. | 17541858. | 102223976. | 96. | 96. | 1759.9 | 3215597. | 2171169. | 22.7369 |
| AV | 3528422. | 730911. | 4259333. | 4. | 4. | 73.3 | 133983. | 90465. | 0.9474 |
| MONTHLY SUMMARY (MAY) | | | | | | | | | |
| MN | 411510. | 194213. | 605723. | 4. | 4. | 64.7 | 109160. | 90465. | 0.7718 |
| MX | 6348487. | 1258375. | 7606862. | 4. | 4. | 80.3 | 141426. | 90465. | 1.0000 |
| SM | 138128000. | 29775988. | 167903984. | 192. | 192. | 3327.7 | 6302187. | 4342338. | 44.5616 |
| AV | 2877667. | 620333. | 3498000. | 4. | 4. | 69.3 | 131296. | 90465. | 0.9284 |

| | HERM-CEN T-CHLR LOAD BTU/HR ----( 1) | HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----( 3) | COOLING-TWR LOAD BTU/HR ----( 1) | COOLING-TWR SIZES RUNNING ----( 6) | COOLING-TWR MINIMUM CELL NO. ----( 9) | COOLING-TWR TOWER TEMP F ----(19) | COOLING-TWR FAN ELEC BTU/HR ----(20) | COOLING-TWR PUMP ELEC BTU/HR ----(21) | COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT. ----(23) |
|---|---|---|---|---|---|---|---|---|---|
| 613 1 | 1978521. | 499272. | 2477793. | 4. | 4. | 74.0 | 134203. | 90465. | 0.9489 |
| 613 2 | 1961302. | 497405. | 2458708. | 4. | 4. | 74.0 | 134081. | 90465. | 0.9481 |
| 613 3 | 1876837. | 488353. | 2365190. | 4. | 4. | 74.0 | 133470. | 90465. | 0.9437 |
| 613 4 | 1812907. | 481616. | 2294523. | 4. | 4. | 74.0 | 132996. | 90465. | 0.9404 |
| 613 5 | 1836007. | 484039. | 2320046. | 4. | 4. | 75.0 | 132231. | 90465. | 0.9350 |
| 613 6 | 2841241. | 605906. | 3447147. | 4. | 4. | 75.0 | 138819. | 90465. | 0.9816 |
| 613 7 | 4415719. | 842722. | 5258441. | 4. | 4. | 77.0 | 141426. | 90465. | 1.0000 |
| 613 8 | 5238986. | 1004274. | 6243259. | 4. | 4. | 78.9 | 141426. | 90465. | 1.0000 |
| 613 9 | 5833208. | 1139176. | 6972384. | 4. | 4. | 80.6 | 141426. | 90465. | 1.0000 |
| 61310 | 6349579. | 1267680. | 7617259. | 4. | 4. | 82.2 | 141426. | 90465. | 1.0000 |
| 61311 | 6600368. | 1341880. | 7942248. | 4. | 4. | 82.6 | 141426. | 90465. | 1.0000 |
| 61312 | 7022062. | 1448864. | 8470926. | 4. | 4. | 84.0 | 141426. | 90465. | 1.0000 |
| 61313 | 6994234. | 1458491. | 8452724. | 4. | 4. | 82.4 | 141426. | 90465. | 1.0000 |
| 61314 | 7271629. | 1507925. | 8779554. | 4. | 4. | 83.6 | 141426. | 90465. | 1.0000 |
| 61315 | 6310310. | 1287850. | 7598160. | 4. | 4. | 79.0 | 141426. | 90465. | 1.0000 |
| 61316 | 5762688. | 1125281. | 6887969. | 4. | 4. | 78.1 | 141426. | 90465. | 1.0000 |
| 61317 | 5415416. | 1047087. | 6462502. | 4. | 4. | 80.0 | 141426. | 90465. | 1.0000 |
| 61318 | 4953252. | 970333. | 5923585. | 4. | 4. | 78.5 | 141426. | 90465. | 1.0000 |
| 61319 | 4347997. | 851085. | 5199081. | 4. | 4. | 77.7 | 141426. | 90465. | 1.0000 |
| 61320 | 3921492. | 775505. | 4696997. | 4. | 4. | 77.2 | 141426. | 90465. | 1.0000 |
| 61321 | 3655017. | 731102. | 4386119. | 4. | 4. | 76.9 | 141426. | 90465. | 1.0000 |
| 61322 | 3392706. | 690490. | 4083196. | 4. | 4. | 76.0 | 141003. | 90465. | 0.9970 |
| 61323 | 3221664. | 661677. | 3883340. | 4. | 4. | 76.0 | 140147. | 90465. | 0.9910 |
| 61324 | 3054979. | 638549. | 3693528. | 4. | 4. | 76.0 | 139284. | 90465. | 0.9849 |
| DAILY SUMMARY (JUN 13) | | | | | | | | | |
| MN | 1812907. | 481616. | 2294523. | 4. | 4. | 74.0 | 132231. | 90465. | 0.9350 |
| MX | 7271629. | 1507925. | 8779554. | 4. | 4. | 84.0 | 141426. | 90465. | 1.0000 |
| SM | 106068112. | 21846556. | 127914696. | 96. | 96. | 1872.8 | 3347633. | 2171169. | 23.6705 |
| AV | 4419505. | 910273. | 5329779. | 4. | 4. | 78.0 | 139485. | 90465. | 0.9863 |

| | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | COOLING-TWR LOAD BTU/HR | COOLING-TWR SIZES RUNNING | COOLING-TWR MINIMUM CELL NO. | COOLING-TWR TOWER TEMP F | COOLING-TWR FAN ELEC BTU/HR | COOLING-TWR PUMP ELEC BTU/HR | COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT. |
|---|---|---|---|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----( 1) | ----( 6) | ----( 9) | ----(19) | ----(20) | ----(21) | ----(23) |
| 614 1 | 2812733. | 606183. | 3418916. | 4. | 4. | 76.0 | 137946. | 90465. | 0.9754 |
| 614 2 | 2660563. | 586604. | 3247167. | 4. | 4. | 75.0 | 137811. | 90465. | 0.9744 |
| 614 3 | 2611037. | 576516. | 3187552. | 4. | 4. | 76.0 | 136729. | 90465. | 0.9668 |
| 614 4 | 2477601. | 563827. | 3041428. | 4. | 4. | 76.0 | 135914. | 90465. | 0.9610 |
| 614 5 | 2410466. | 555678. | 2966144. | 4. | 4. | 76.0 | 135480. | 90465. | 0.9580 |
| 614 6 | 3401448. | 687409. | 4088857. | 4. | 4. | 77.0 | 140390. | 90465. | 0.9927 |
| 614 7 | 4922452. | 944387. | 5866839. | 4. | 4. | 79.3 | 141426. | 90465. | 1.0000 |
| 614 8 | 5780206. | 1130959. | 6911166. | 4. | 4. | 81.3 | 141426. | 90465. | 1.0000 |
| 614 9 | 5858298. | 1165021. | 7023318. | 4. | 4. | 79.9 | 141426. | 90465. | 1.0000 |
| 61410 | 6107864. | 1206654. | 7314518. | 4. | 4. | 80.2 | 141426. | 90465. | 1.0000 |
| 61411 | 6083711. | 1204473. | 7288184. | 4. | 4. | 79.4 | 141426. | 90465. | 1.0000 |
| 61412 | 6466565. | 1283649. | 7750214. | 4. | 4. | 80.8 | 141426. | 90465. | 1.0000 |
| 61413 | 6792395. | 1373430. | 8165825. | 4. | 4. | 82.8 | 141426. | 90465. | 1.0000 |
| 61414 | 6678760. | 1367614. | 8046374. | 4. | 4. | 81.9 | 141426. | 90465. | 1.0000 |
| 61415 | 5432629. | 1080210. | 6512839. | 4. | 4. | 78.4 | 141426. | 90465. | 1.0000 |
| 61416 | 4474579. | 872512. | 5347091. | 4. | 4. | 73.9 | 141426. | 90465. | 1.0000 |
| 61417 | 3608903. | 708528. | 4317432. | 4. | 4. | 69.5 | 141426. | 90465. | 1.0000 |
| 61418 | 1875511. | 476006. | 2351517. | 4. | 4. | 65.0 | 136517. | 90465. | 0.9653 |
| 61419 | 1116705. | 396259. | 1512964. | 4. | 4. | 65.0 | 123847. | 90465. | 0.8757 |
| 61420 | 874478. | 376441. | 1250918. | 4. | 4. | 65.0 | 124904. | 90465. | 0.8832 |
| 61421 | 734309. | 347344. | 1081653. | 4. | 4. | 65.0 | 123235. | 90465. | 0.8714 |
| 61422 | 476221. | 224855. | 701076. | 4. | 4. | 65.0 | 119112. | 90465. | 0.8422 |
| 61423 | 311525. | 146922. | 458447. | 4. | 4. | 65.0 | 106988. | 90465. | 0.7565 |
| 61424 | 396137. | 186937. | 583074. | 4. | 4. | 65.0 | 108833. | 90465. | 0.7695 |
| DAILY SUMMARY (JUN 14) | | | | | | | | | |
| MN | 311525. | 146922. | 458447. | 4. | 4. | 65.0 | 106988. | 90465. | 0.7565 |
| MX | 6792395. | 1373430. | 8165825. | 4. | 4. | 82.8 | 141426. | 90465. | 1.0000 |
| SM | 84365104. | 18068416. | 102433504. | 96. | 96. | 1778.5 | 3223398. | 2171169. | 22.7920 |
| AV | 3515213. | 752851. | 4268063. | 4. | 4. | 74.1 | 134308. | 90465. | 0.9497 |
| MONTHLY SUMMARY (JUN) | | | | | | | | | |
| MN | 311525. | 146922. | 458447. | 4. | 4. | 65.0 | 106988. | 90465. | 0.7565 |
| MX | 7271629. | 1507925. | 8779554. | 4. | 4. | 84.0 | 141426. | 90465. | 1.0000 |
| SM | 190433216. | 39914972. | 230348192. | 192. | 192. | 3651.2 | 6571031. | 4342338. | 46.4625 |
| AV | 3967359. | 831562. | 4798921. | 4. | 4. | 76.1 | 136896. | 90465. | 0.9680 |

| | HERM-CEN T-CHLR LOAD BTU/HR ----( 1) | HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----( 3) | COOLING-TWR LOAD BTU/HR ----( 1) | COOLING-TWR SIZES RUNNING ----( 6) | COOLING-TWR MINIMUM CELL NO. ----( 9) | COOLING-TWR TOWER TEMP F ----(19) | COOLING-TWR FAN ELEC BTU/HR ----(20) | COOLING-TWR PUMP ELEC BTU/HR ----(21) | COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT. ----(23) |
|---|---|---|---|---|---|---|---|---|---|
| 818 1 | 2536384. | 563673. | 3100056. | 4. | 4. | 74.0 | 137821. | 90465. | 0.9745 |
| 818 2 | 2334174. | 539448. | 2873622. | 4. | 4. | 73.0 | 137421. | 90465. | 0.9717 |
| 818 3 | 2237630. | 525018. | 2762648. | 4. | 4. | 73.0 | 136803. | 90465. | 0.9673 |
| 818 4 | 2064430. | 505578. | 2570008. | 4. | 4. | 72.0 | 136575. | 90465. | 0.9657 |
| 818 5 | 1877811. | 482605. | 2360416. | 4. | 4. | 71.0 | 136255. | 90465. | 0.9634 |
| 818 6 | 2772317. | 583158. | 3355475. | 4. | 4. | 72.0 | 140631. | 90465. | 0.9944 |
| 818 7 | 4335458. | 815039. | 5150497. | 4. | 4. | 75.2 | 141426. | 90465. | 1.0000 |
| 818 8 | 5256840. | 996690. | 6253530. | 4. | 4. | 78.1 | 141426. | 90465. | 1.0000 |
| 818 9 | 5808053. | 1127677. | 6935730. | 4. | 4. | 79.0 | 141426. | 90465. | 1.0000 |
| 81810 | 6218376. | 1223490. | 7441865. | 4. | 4. | 80.4 | 141426. | 90465. | 1.0000 |
| 81811 | 6601525. | 1324143. | 7925668. | 4. | 4. | 81.8 | 141426. | 90465. | 1.0000 |
| 81812 | 6680344. | 1356615. | 8036959. | 4. | 4. | 81.1 | 141426. | 90465. | 1.0000 |
| 81813 | 7079866. | 1446835. | 8526701. | 4. | 4. | 81.7 | 141426. | 90465. | 1.0000 |
| 81814 | 7281769. | 1502584. | 8784353. | 4. | 4. | 83.6 | 141426. | 90465. | 1.0000 |
| 81815 | 6946938. | 1441591. | 8388528. | 4. | 4. | 85.5 | 141426. | 90465. | 1.0000 |
| 81816 | 5940299. | 1224131. | 7164430. | 4. | 4. | 84.1 | 141426. | 90465. | 1.0000 |
| 81817 | 5673811. | 1151062. | 6824874. | 4. | 4. | 83.7 | 141426. | 90465. | 1.0000 |
| 81818 | 5161632. | 1040863. | 6202494. | 4. | 4. | 83.0 | 141426. | 90465. | 1.0000 |
| 81819 | 4581775. | 923552. | 5505327. | 4. | 4. | 82.3 | 141426. | 90465. | 1.0000 |
| 81820 | 4249036. | 858486. | 5107522. | 4. | 4. | 81.0 | 141426. | 90465. | 1.0000 |
| 81821 | 4032552. | 813154. | 4845706. | 4. | 4. | 81.0 | 141164. | 90465. | 0.9981 |
| 81822 | 3817701. | 777868. | 4595569. | 4. | 4. | 81.0 | 140182. | 90465. | 0.9912 |
| 81823 | 3615632. | 745860. | 4361492. | 4. | 4. | 81.0 | 139195. | 90465. | 0.9842 |
| 81824 | 3410250. | 714421. | 4124671. | 4. | 4. | 81.0 | 138126. | 90465. | 0.9767 |
| DAILY SUMMARY (AUG 18) | | | | | | | | | |
| MN | 1877811. | 482605. | 2360416. | 4. | 4. | 71.0 | 136255. | 90465. | 0.9634 |
| MX | 7281769. | 1502584. | 8784353. | 4. | 4. | 85.5 | 141426. | 90465. | 1.0000 |
| SM | 110514592. | 22683538. | 133198136. | 96. | 96. | 1899.6 | 3364144. | 2171169. | 23.7872 |
| AV | 4604775. | 945147. | 5549923. | 4. | 4. | 79.1 | 140173. | 90465. | 0.9911 |

| | HERM-CEN T-CHLR LOAD BTU/HR ----( 1) | HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----( 3) | COOLING-TWR LOAD BTU/HR ----( 1) | COOLING-TWR SIZES RUNNING ----( 6) | COOLING-TWR MINIMUM CELL NO. ----( 9) | COOLING-TWR TOWER TEMP F ----(19) | COOLING-TWR FAN ELEC BTU/HR ----(20) | COOLING-TWR PUMP ELEC BTU/HR ----(21) | COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT. ----(23) |
|---|---|---|---|---|---|---|---|---|---|
| 819 1 | 3153977. | 676731. | 3830708. | 4. | 4. | 80.0 | 137306. | 90465. | 0.9709 |
| 819 2 | 3031609. | 654113. | 3685723. | 4. | 4. | 80.0 | 136567. | 90465. | 0.9656 |
| 819 3 | 2824754. | 625788. | 3450542. | 4. | 4. | 79.0 | 135979. | 90465. | 0.9615 |
| 819 4 | 2751367. | 611254. | 3362621. | 4. | 4. | 79.0 | 135493. | 90465. | 0.9580 |
| 819 5 | 2710398. | 605888. | 3316286. | 4. | 4. | 79.0 | 135231. | 90465. | 0.9562 |
| 819 6 | 3472536. | 712725. | 4185261. | 4. | 4. | 79.0 | 139575. | 90465. | 0.9869 |
| 819 7 | 4895288. | 952448. | 5847736. | 4. | 4. | 80.1 | 141426. | 90465. | 1.0000 |
| 819 8 | 5613660. | 1102562. | 6716222. | 4. | 4. | 80.3 | 141426. | 90465. | 1.0000 |
| 819 9 | 6122802. | 1213702. | 7336503. | 4. | 4. | 81.0 | 141426. | 90465. | 1.0000 |
| 81910 | 6208665. | 1239796. | 7448460. | 4. | 4. | 80.4 | 141426. | 90465. | 1.0000 |
| 81911 | 6379204. | 1272526. | 7651730. | 4. | 4. | 81.4 | 141426. | 90465. | 1.0000 |
| 81912 | 6527596. | 1316968. | 7844564. | 4. | 4. | 81.7 | 141426. | 90465. | 1.0000 |
| 81913 | 6886882. | 1405727. | 8292609. | 4. | 4. | 83.8 | 141426. | 90465. | 1.0000 |
| 81914 | 6712683. | 1386316. | 8098998. | 4. | 4. | 82.8 | 141426. | 90465. | 1.0000 |
| 81915 | 6310945. | 1279852. | 7590797. | 4. | 4. | 81.4 | 141426. | 90465. | 1.0000 |
| 81916 | 5313110. | 1051291. | 6364402. | 4. | 4. | 79.9 | 141426. | 90465. | 1.0000 |
| 81917 | 4922273. | 963622. | 5885894. | 4. | 4. | 80.1 | 141426. | 90465. | 1.0000 |
| 81918 | 4453642. | 879778. | 5333420. | 4. | 4. | 77.9 | 141426. | 90465. | 1.0000 |
| 81919 | 3853985. | 765521. | 4619506. | 4. | 4. | 77.1 | 141426. | 90465. | 1.0000 |
| 81920 | 3572672. | 718228. | 4290899. | 4. | 4. | 75.2 | 141426. | 90465. | 1.0000 |
| 81921 | 3253499. | 662527. | 3916027. | 4. | 4. | 73.2 | 141426. | 90465. | 1.0000 |
| 81922 | 2999245. | 619772. | 3619017. | 4. | 4. | 72.1 | 141426. | 90465. | 1.0000 |
| 81923 | 2720708. | 580004. | 3300711. | 4. | 4. | 71.0 | 141146. | 90465. | 0.9980 |
| 81924 | 2453723. | 544165. | 2997888. | 4. | 4. | 69.0 | 141355. | 90465. | 0.9995 |
| DAILY SUMMARY (AUG 19) | | | | | | | | | |
| MN | 2453723. | 544165. | 2997888. | 4. | 4. | 69.0 | 135231. | 90465. | 0.9562 |
| MX | 6886882. | 1405727. | 8292609. | 4. | 4. | 83.8 | 141426. | 90465. | 1.0000 |
| SM | 107145208. | 21841304. | 128986520. | 96. | 96. | 1884.3 | 3365477. | 2171169. | 23.7967 |
| AV | 4464384. | 910054. | 5374439. | 4. | 4. | 78.5 | 140228. | 90465. | 0.9915 |
| MONTHLY SUMMARY (AUG) | | | | | | | | | |
| MN | 1877811. | 482605. | 2360416. | 4. | 4. | 69.0 | 135231. | 90465. | 0.9562 |
| MX | 7281769. | 1502584. | 8784353. | 4. | 4. | 85.5 | 141426. | 90465. | 1.0000 |
| SM | 217659808. | 44524840. | 262184656. | 192. | 192. | 3783.8 | 6729621. | 4342338. | 47.5839 |
| AV | 4534580. | 927601. | 5462181. | 4. | 4. | 78.8 | 140200. | 90465. | 0.9913 |

| | HERM-CEN T-CHLR LOAD BTU/HR ----( 1) | HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----( 3) | COOLING-TWR LOAD BTU/HR ----( 1) | COOLING-TWR SIZES RUNNING ----( 6) | COOLING-TWR MINIMUM CELL NO. ----( 9) | COOLING-TWR TOWER TEMP F ----(19) | COOLING-TWR FAN ELEC BTU/HR ----(20) | COOLING-TWR PUMP ELEC BTU/HR ----(21) | COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT. ----(23) |
|---|---|---|---|---|---|---|---|---|---|
| 10 9 1 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| 10 9 2 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| 10 9 3 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| 10 9 4 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| 10 9 5 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| 10 9 6 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| 10 9 7 | 310268. | 146328. | 456596. | 4. | 4. | 65.0 | 106960. | 90465. | 0.7563 |
| 10 9 8 | 350550. | 165372. | 515923. | 4. | 4. | 65.0 | 107849. | 90465. | 0.7626 |
| 10 9 9 | 361058. | 170342. | 531399. | 4. | 4. | 65.0 | 108078. | 90465. | 0.7642 |
| 10 910 | 375266. | 177062. | 552328. | 4. | 4. | 65.0 | 108385. | 90465. | 0.7664 |
| 10 911 | 335382. | 158200. | 493581. | 4. | 4. | 65.0 | 107516. | 90465. | 0.7602 |
| 10 912 | 322481. | 152101. | 474582. | 4. | 4. | 65.0 | 107231. | 90465. | 0.7582 |
| 10 913 | 343681. | 162124. | 505805. | 4. | 4. | 65.0 | 107698. | 90465. | 0.7615 |
| 10 914 | 379552. | 179090. | 558643. | 4. | 4. | 65.0 | 108478. | 90465. | 0.7670 |
| 10 915 | 347345. | 163856. | 511201. | 4. | 4. | 65.0 | 107779. | 90465. | 0.7621 |
| 10 916 | 387722. | 182955. | 570677. | 4. | 4. | 65.0 | 108653. | 90465. | 0.7683 |
| 10 917 | 339555. | 160173. | 499728. | 4. | 4. | 65.0 | 107608. | 90465. | 0.7609 |
| 10 918 | 341501. | 161093. | 502594. | 4. | 4. | 65.0 | 107651. | 90465. | 0.7612 |
| 10 919 | 311592. | 146954. | 458545. | 4. | 4. | 65.0 | 106989. | 90465. | 0.7565 |
| 10 920 | 321309. | 151547. | 472857. | 4. | 4. | 65.0 | 107205. | 90465. | 0.7580 |
| 10 921 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| 10 922 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| 10 923 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| 10 924 | 309472. | 145952. | 455424. | 4. | 4. | 65.0 | 106942. | 90465. | 0.7562 |
| DAILY SUMMARY (OCT 9) | | | | | | | | | |
| MN | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| MX | 387722. | 182955. | 570677. | 4. | 4. | 65.0 | 108653. | 90465. | 0.7683 |
| SM | 7861235. | 3708009. | 11569244. | 96. | 96. | 1560.0 | 2576145. | 2171169. | 18.2154 |
| AV | 327551. | 154500. | 482052. | 4. | 4. | 65.0 | 107339. | 90465. | 0.7590 |

| | HERM-CEN T-CHLR LOAD BTU/HR ----( 1) | HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----( 3) | COOLING-TWR LOAD BTU/HR ----( 1) | COOLING-TWR SIZES RUNNING ----( 6) | COOLING-TWR MINIMUM CELL NO. ----( 9) | COOLING-TWR TOWER TEMP F ----(19) | COOLING-TWR FAN ELEC BTU/HR ----(20) | COOLING-TWR PUMP ELEC BTU/HR ----(21) | COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT. ----(23) |
|---|---|---|---|---|---|---|---|---|---|
| 1010 1 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| 1010 2 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| 1010 3 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| 1010 4 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| 1010 5 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| 1010 6 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| 1010 7 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| 1010 8 | 353627. | 166827. | 520455. | 4. | 4. | 65.0 | 107916. | 90465. | 0.7631 |
| 1010 9 | 410347. | 193662. | 604009. | 4. | 4. | 65.0 | 109135. | 90465. | 0.7717 |
| 101010 | 317377. | 149688. | 467065. | 4. | 4. | 65.0 | 107118. | 90465. | 0.7574 |
| 101011 | 396127. | 186932. | 583059. | 4. | 4. | 65.0 | 108833. | 90465. | 0.7695 |
| 101012 | 353404. | 166722. | 520126. | 4. | 4. | 65.0 | 107911. | 90465. | 0.7630 |
| 101013 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| 101014 | 310630. | 146499. | 457129. | 4. | 4. | 65.0 | 106968. | 90465. | 0.7564 |
| 101015 | 333411. | 157268. | 490679. | 4. | 4. | 65.0 | 107473. | 90465. | 0.7599 |
| 101016 | 316320. | 149189. | 465509. | 4. | 4. | 65.0 | 107095. | 90465. | 0.7572 |
| 101017 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| 101018 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| 101019 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| 101020 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| 101021 | 303316. | 143043. | 446359. | 4. | 4. | 65.0 | 106805. | 90465. | 0.7552 |
| 101022 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| 101023 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| 101024 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| DAILY SUMMARY (OCT 10) | | | | | | | | | |
| MN | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| MX | 410347. | 193662. | 604009. | 4. | 4. | 65.0 | 109135. | 90465. | 0.7717 |
| SM | 7635397. | 3601262. | 11236656. | 96. | 96. | 1560.0 | 2571125. | 2171169. | 18.1799 |
| AV | 318142. | 150053. | 468194. | 4. | 4. | 65.0 | 107130. | 90465. | 0.7575 |
| MONTHLY SUMMARY (OCT) | | | | | | | | | |
| MN | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 106791. | 90465. | 0.7551 |
| MX | 410347. | 193662. | 604009. | 4. | 4. | 65.0 | 109135. | 90465. | 0.7717 |
| SM | 15496632. | 7309271. | 22805900. | 192. | 192. | 3120.0 | 5147270. | 4342338. | 36.3954 |
| AV | 322847. | 152276. | 475123. | 4. | 4. | 65.0 | 107235. | 90465. | 0.7582 |
| YEARLY SUMMARY | | | | | | | | | |
| MN | 302722. | 142762. | 445485. | 4. | 4. | 64.7 | 106791. | 90465. | 0.7551 |
| MX | 7281769. | 1507925. | 8784353. | 4. | 4. | 85.5 | 141426. | 90465. | 1.0000 |
| SM | 561717696. | 121525072. | 683242688. | 768. | 768. | 13882.7 | 24750108. | 17369352. | 175.0034 |
| AV | 2925613. | 632943. | 3558556. | 4. | 4. | 72.3 | 128907. | 90465. | 0.9115 |

ECO-8



HOURLY
2-SPEED
RESULTS

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|---|---|---|
| CATEGORY OF USE | | |
| SPACE HEAT | 229.01 | 5128.55 |
| SPACE COOL | 2659.66 | 0.00 |
| HVAC AUX | 5352.53 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 10258.61 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 4521.42 | 0.00 |
| TOTAL | 23021.24 | 5128.55 |

TOTAL SITE ENERGY 28149.62 MBTU 85.4 KBTU/SQFT-YR GROSS-AREA 85.4 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 74261.00 MBTU 225.4 KBTU/SQFT-YR GROSS-AREA 225.4 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 3.7
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

ENTECH ENGINEERING  READING, PA 19603  EZDOE - ELITE SOFTWARE DEVELOPMENT INC  4130.05 FT. MONMOUTH - MYER CENTER, NJ  DOE-2.1D 6/18/1996 2:10:24 PDL RUN 1  FTMOACO - SIM MCA H20 ONLY W/OA SCHD1

RP_1 = HOURLY-REPORT



| MMDDHH | HERM-CEN T-CHLR LOAD BTU/HR ----( 1) | HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----( 3) | COOLING-TWR LOAD BTU/HR ----( 1) | COOLING-TWR SIZES RUNNING ----( 6) | COOLING-TWR MINIMUM CELL NO. ----( 9) | COOLING-TWR TOWER TEMP F ----(19) | COOLING-TWR FAN ELEC BTU/HR ----(20) | COOLING-TWR PUMP ELEC BTU/HR ----(21) | COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT. ----(23) |
|---|---|---|---|---|---|---|---|---|---|
| 525 1 | 618332. | 292245. | 910577. | 4. | 4. | 65.0 | 16184. | 90465. | 0.9155 |
| 525 2 | 411510. | 194213. | 605723. | 4. | 4. | 65.0 | 15590. | 90465. | 0.8818 |
| 525 3 | 437646. | 206585. | 644231. | 4. | 4. | 65.0 | 15668. | 90465. | 0.8863 |
| 525 4 | 459344. | 216860. | 676205. | 4. | 4. | 65.0 | 15732. | 90465. | 0.8899 |
| 525 5 | 431755. | 203796. | 635551. | 4. | 4. | 65.0 | 15650. | 90465. | 0.8853 |
| 525 6 | 631318. | 298410. | 929728. | 4. | 4. | 65.0 | 16219. | 90465. | 0.9175 |
| 525 7 | 1706845. | 450241. | 2157086. | 4. | 4. | 65.0 | 36892. | 90465. | 0.1553 |
| 525 8 | 2762013. | 567236. | 3329249. | 4. | 4. | 65.0 | 95720. | 90465. | 0.6306 |
| 525 9 | 3854814. | 716778. | 4571592. | 4. | 4. | 65.0 | 138699. | 90465. | 0.9780 |
| 52510 | 4301003. | 786343. | 5087345. | 4. | 4. | 65.1 | 141426. | 90465. | 1.0000 |
| 52511 | 4666796. | 847285. | 5514080. | 4. | 4. | 65.8 | 141426. | 90465. | 1.0000 |
| 52512 | 4869973. | 884564. | 5754538. | 4. | 4. | 66.3 | 141426. | 90465. | 1.0000 |
| 52513 | 5409071. | 984728. | 6393799. | 4. | 4. | 68.6 | 141426. | 90465. | 1.0000 |
| 52514 | 4793663. | 879746. | 5673409. | 4. | 4. | 67.3 | 141426. | 90465. | 1.0000 |
| 52515 | 4132488. | 765379. | 4897868. | 4. | 4. | 64.7 | 141426. | 90465. | 1.0000 |
| 52516 | 3212557. | 624823. | 3837380. | 4. | 4. | 65.0 | 129284. | 90465. | 0.9019 |
| 52517 | 2672214. | 556242. | 3228457. | 4. | 4. | 65.0 | 123537. | 90465. | 0.8554 |
| 52518 | 2226339. | 504528. | 2730867. | 4. | 4. | 65.0 | 122077. | 90465. | 0.8436 |
| 52519 | 1382371. | 419556. | 1801927. | 4. | 4. | 65.0 | 81590. | 90465. | 0.5165 |
| 52520 | 1186833. | 402250. | 1589082. | 4. | 4. | 65.0 | 70469. | 90465. | 0.4266 |
| 52521 | 1013197. | 387625. | 1400821. | 4. | 4. | 65.0 | 35360. | 90465. | 0.1429 |
| 52522 | 848518. | 374397. | 1222915. | 4. | 4. | 65.0 | 23634. | 90465. | 0.0481 |
| 52523 | 762992. | 360986. | 1123978. | 4. | 4. | 65.0 | 17661. | 90465. | 0.9990 |
| 52524 | 654281. | 309315. | 963596. | 4. | 4. | 65.0 | 16281. | 90465. | 0.9210 |
| DAILY SUMMARY (MAY 25) | | | | | | | | | |
| MN | 411510. | 194213. | 605723. | 4. | 4. | 64.7 | 15590. | 90465. | 0.0481 |
| MX | 5409071. | 984728. | 6393799. | 4. | 4. | 68.6 | 141426. | 90465. | 1.0000 |
| SM | 53445864. | 12234129. | 65680004. | 96. | 96. | 1567.8 | 1834806. | 2171169. | 18.7951 |
| AV | 2226911. | 509755. | 2736667. | 4. | 4. | 65.3 | 76450. | 90465. | 0.7831 |

| | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | COOLING-TWR LOAD BTU/HR | COOLING-TWR SIZES RUNNING | COOLING-TWR MINIMUM CELL NO. | COOLING-TWR TOWER TEMP F | COOLING-TWR FAN ELEC BTU/HR | COOLING-TWR PUMP ELEC BTU/HR | COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT. |
|---|---|---|---|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----( 1) | ----( 6) | ----( 9) | ----(19) | ----(20) | ----(21) | ----(23) |
| 526 1 | 624341. | 295098. | 919438. | 4. | 4. | 65.0 | 16200. | 90465. | 0.9164 |
| 526 2 | 578325. | 273260. | 851585. | 4. | 4. | 65.0 | 16074. | 90465. | 0.9092 |
| 526 3 | 470532. | 222160. | 692692. | 4. | 4. | 65.0 | 15765. | 90465. | 0.8918 |
| 526 4 | 427352. | 201711. | 629063. | 4. | 4. | 65.0 | 15637. | 90465. | 0.8845 |
| 526 5 | 436795. | 206182. | 642977. | 4. | 4. | 65.0 | 15666. | 90465. | 0.8861 |
| 526 6 | 838944. | 373647. | 1212591. | 4. | 4. | 65.0 | 22932. | 90465. | 0.0425 |
| 526 7 | 3627962. | 683317. | 4311280. | 4. | 4. | 68.7 | 141426. | 90465. | 1.0000 |
| 526 8 | 4515940. | 832542. | 5348482. | 4. | 4. | 72.3 | 141426. | 90465. | 1.0000 |
| 526 9 | 4959050. | 925133. | 5884183. | 4. | 4. | 74.5 | 141426. | 90465. | 1.0000 |
| 52610 | 5139727. | 970342. | 6110069. | 4. | 4. | 75.6 | 141426. | 90465. | 1.0000 |
| 52611 | 5441774. | 1035158. | 6476932. | 4. | 4. | 76.8 | 141426. | 90465. | 1.0000 |
| 52612 | 5838525. | 1124508. | 6963033. | 4. | 4. | 78.2 | 141426. | 90465. | 1.0000 |
| 52613 | 6225351. | 1218847. | 7444198. | 4. | 4. | 79.6 | 141426. | 90465. | 1.0000 |
| 52614 | 6348487. | 1258375. | 7606862. | 4. | 4. | 79.8 | 141426. | 90465. | 1.0000 |
| 52615 | 6132609. | 1211687. | 7344296. | 4. | 4. | 80.3 | 141426. | 90465. | 1.0000 |
| 52616 | 5372993. | 1054609. | 6427603. | 4. | 4. | 79.1 | 141426. | 90465. | 1.0000 |
| 52617 | 4961285. | 965807. | 5927092. | 4. | 4. | 77.7 | 141426. | 90465. | 1.0000 |
| 52618 | 4347851. | 846228. | 5194078. | 4. | 4. | 76.9 | 141426. | 90465. | 1.0000 |
| 52619 | 3761942. | 745937. | 4507880. | 4. | 4. | 76.2 | 141426. | 90465. | 1.0000 |
| 52620 | 3355095. | 681606. | 4036701. | 4. | 4. | 76.0 | 137092. | 90465. | 0.9650 |
| 52621 | 3099357. | 644638. | 3743995. | 4. | 4. | 75.0 | 132873. | 90465. | 0.9309 |
| 52622 | 3000988. | 627077. | 3628066. | 4. | 4. | 75.0 | 129175. | 90465. | 0.9010 |
| 52623 | 2668355. | 583710. | 3252065. | 4. | 4. | 74.0 | 121628. | 90465. | 0.8400 |
| 52624 | 2508545. | 560278. | 3068822. | 4. | 4. | 74.0 | 114977. | 90465. | 0.7863 |
| DAILY SUMMARY (MAY 26) | | | | | | | | | |
| MN | 427352. | 201711. | 629063. | 4. | 4. | 65.0 | 15637. | 90465. | 0.0425 |
| MX | 6348487. | 1258375. | 7606862. | 4. | 4. | 80.3 | 141426. | 90465. | 1.0000 |
| SM | 84682128. | 17541858. | 102223976. | 96. | 96. | 1759.9 | 2576562. | 2171169. | 21.9537 |
| AV | 3528422. | 730911. | 4259333. | 4. | 4. | 73.3 | 107357. | 90465. | 0.9147 |
| MONTHLY SUMMARY (MAY) | | | | | | | | | |
| MN | 411510. | 194213. | 605723. | 4. | 4. | 64.7 | 15590. | 90465. | 0.0425 |
| MX | 6348487. | 1258375. | 7606862. | 4. | 4. | 80.3 | 141426. | 90465. | 1.0000 |
| SM | 138128000. | 29775988. | 167903984. | 192. | 192. | 3327.7 | 4411369. | 4342338. | 40.7488 |
| AV | 2877667. | 620333. | 3498000. | 4. | 4. | 69.3 | 91904. | 90465. | 0.8489 |

| | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | COOLING-TWR LOAD BTU/HR | COOLING-TWR SIZES RUNNING | COOLING-TWR MINIMUM CELL NO. | COOLING-TWR TOWER TEMP F | COOLING-TWR FAN ELEC BTU/HR | COOLING-TWR PUMP ELEC BTU/HR | COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT. |
|---|---|---|---|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----( 1) | ----( 6) | ----( 9) | ----(19) | ----(20) | ----(21) | ----(23) |
| 613 1 | 1978521. | 499272. | 2477793. | 4. | 4. | 74.0 | 90758. | 90465. | 0.5905 |
| 613 2 | 1961302. | 497405. | 2458708. | 4. | 4. | 74.0 | 89898. | 90465. | 0.5836 |
| 613 3 | 1876837. | 488353. | 2365190. | 4. | 4. | 74.0 | 85612. | 90465. | 0.5490 |
| 613 4 | 1812907. | 481616. | 2294523. | 4. | 4. | 74.0 | 82288. | 90465. | 0.5221 |
| 613 5 | 1836007. | 484039. | 2320046. | 4. | 4. | 75.0 | 76921. | 90465. | 0.4787 |
| 613 6 | 2841241. | 605906. | 3447147. | 4. | 4. | 75.0 | 123138. | 90465. | 0.8522 |
| 613 7 | 4415719. | 842722. | 5258441. | 4. | 4. | 77.0 | 141426. | 90465. | 1.0000 |
| 613 8 | 5238986. | 1004274. | 6243259. | 4. | 4. | 78.9 | 141426. | 90465. | 1.0000 |
| 613 9 | 5833208. | 1139176. | 6972384. | 4. | 4. | 80.6 | 141426. | 90465. | 1.0000 |
| 61310 | 6349579. | 1267680. | 7617259. | 4. | 4. | 82.2 | 141426. | 90465. | 1.0000 |
| 61311 | 6600368. | 1341880. | 7942248. | 4. | 4. | 82.6 | 141426. | 90465. | 1.0000 |
| 61312 | 7022062. | 1448864. | 8470926. | 4. | 4. | 84.0 | 141426. | 90465. | 1.0000 |
| 61313 | 6994234. | 1458491. | 8452724. | 4. | 4. | 82.4 | 141426. | 90465. | 1.0000 |
| 61314 | 7271629. | 1507925. | 8779554. | 4. | 4. | 83.6 | 141426. | 90465. | 1.0000 |
| 61315 | 6310310. | 1287850. | 7598160. | 4. | 4. | 79.0 | 141426. | 90465. | 1.0000 |
| 61316 | 5762688. | 1125281. | 6887969. | 4. | 4. | 78.1 | 141426. | 90465. | 1.0000 |
| 61317 | 5415416. | 1047087. | 6462502. | 4. | 4. | 80.0 | 141426. | 90465. | 1.0000 |
| 61318 | 4953252. | 970333. | 5923585. | 4. | 4. | 78.5 | 141426. | 90465. | 1.0000 |
| 61319 | 4347997. | 851085. | 5199081. | 4. | 4. | 77.7 | 141426. | 90465. | 1.0000 |
| 61320 | 3921492. | 775505. | 4696997. | 4. | 4. | 77.2 | 141426. | 90465. | 1.0000 |
| 61321 | 3655017. | 731102. | 4386119. | 4. | 4. | 76.9 | 141426. | 90465. | 1.0000 |
| 61322 | 3392706. | 690490. | 4083196. | 4. | 4. | 76.0 | 138458. | 90465. | 0.9760 |
| 61323 | 3221664. | 661677. | 3883340. | 4. | 4. | 76.0 | 132449. | 90465. | 0.9275 |
| 61324 | 3054979. | 638549. | 3693528. | 4. | 4. | 76.0 | 126400. | 90465. | 0.8786 |
| DAILY SUMMARY (JUN 13) | | | | | | | | | |
| MN | 1812907. | 481616. | 2294523. | 4. | 4. | 74.0 | 76921. | 90465. | 0.4787 |
| MX | 7271629. | 1507925. | 8779554. | 4. | 4. | 84.0 | 141426. | 90465. | 1.0000 |
| SM | 106068112. | 21846556. | 127914696. | 96. | 96. | 1872.8 | 3067319. | 2171169. | 21.3582 |
| AV | 4419505. | 910273. | 5329779. | 4. | 4. | 78.0 | 127805. | 90465. | 0.8899 |

| | HERM-CEN T-CHLR LOAD BTU/HR ----( 1) | HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----( 3) | COOLING-TWR LOAD BTU/HR ----( 1) | COOLING-TWR SIZES RUNNING ----( 6) | COOLING-TWR MINIMUM CELL NO. ----( 9) | COOLING-TWR TOWER TEMP F ----(19) | COOLING-TWR FAN ELEC BTU/HR ----(20) | COOLING-TWR PUMP ELEC BTU/HR ----(21) | COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT. ----(23) |
|---|---|---|---|---|---|---|---|---|---|
| 614 1 | 2812733. | 606183. | 3418916. | 4. | 4. | 76.0 | 117013. | 90465. | 0.8027 |
| 614 2 | 2660563. | 586604. | 3247167. | 4. | 4. | 75.0 | 116068. | 90465. | 0.7951 |
| 614 3 | 2611037. | 576516. | 3187552. | 4. | 4. | 76.0 | 108472. | 90465. | 0.7337 |
| 614 4 | 2477601. | 563827. | 3041428. | 4. | 4. | 76.0 | 102758. | 90465. | 0.6875 |
| 614 5 | 2410466. | 555678. | 2966144. | 4. | 4. | 76.0 | 99712. | 90465. | 0.6629 |
| 614 6 | 3401448. | 687409. | 4088857. | 4. | 4. | 77.0 | 134156. | 90465. | 0.9412 |
| 614 7 | 4922452. | 944387. | 5866839. | 4. | 4. | 79.3 | 141426. | 90465. | 1.0000 |
| 614 8 | 5780206. | 1130959. | 6911166. | 4. | 4. | 81.3 | 141426. | 90465. | 1.0000 |
| 614 9 | 5858298. | 1165021. | 7023318. | 4. | 4. | 79.9 | 141426. | 90465. | 1.0000 |
| 61410 | 6107864. | 1206654. | 7314518. | 4. | 4. | 80.2 | 141426. | 90465. | 1.0000 |
| 61411 | 6083711. | 1204473. | 7288184. | 4. | 4. | 79.4 | 141426. | 90465. | 1.0000 |
| 61412 | 6466565. | 1283649. | 7750214. | 4. | 4. | 80.8 | 141426. | 90465. | 1.0000 |
| 61413 | 6792395. | 1373430. | 8165825. | 4. | 4. | 82.8 | 141426. | 90465. | 1.0000 |
| 61414 | 6678760. | 1367614. | 8046374. | 4. | 4. | 81.9 | 141426. | 90465. | 1.0000 |
| 61415 | 5432629. | 1080210. | 6512839. | 4. | 4. | 78.4 | 141426. | 90465. | 1.0000 |
| 61416 | 4474579. | 872512. | 5347091. | 4. | 4. | 73.9 | 141426. | 90465. | 1.0000 |
| 61417 | 3608903. | 708528. | 4317432. | 4. | 4. | 69.5 | 141426. | 90465. | 1.0000 |
| 61418 | 1875511. | 476006. | 2351517. | 4. | 4. | 65.0 | 106984. | 90465. | 0.7217 |
| 61419 | 1116705. | 396259. | 1512964. | 4. | 4. | 65.0 | 18110. | 90465. | 0.0035 |
| 61420 | 874478. | 376441. | 1250918. | 4. | 4. | 65.0 | 25526. | 90465. | 0.0634 |
| 61421 | 734309. | 347344. | 1081653. | 4. | 4. | 65.0 | 17600. | 90465. | 0.9955 |
| 61422 | 476221. | 224855. | 701076. | 4. | 4. | 65.0 | 17011. | 90465. | 0.9622 |
| 61423 | 311525. | 146922. | 458447. | 4. | 4. | 65.0 | 15279. | 90465. | 0.8643 |
| 61424 | 396137. | 186937. | 583074. | 4. | 4. | 65.0 | 15543. | 90465. | 0.8792 |
| DAILY SUMMARY (JUN 14) | | | | | | | | | |
| MN | 311525. | 146922. | 458447. | 4. | 4. | 65.0 | 15279. | 90465. | 0.0035 |
| MX | 6792395. | 1373430. | 8165825. | 4. | 4. | 82.8 | 141426. | 90465. | 1.0000 |
| SM | 84365104. | 18068416. | 102433504. | 96. | 96. | 1778.5 | 2449923. | 2171169. | 20.1131 |
| AV | 3515213. | 752851. | 4268063. | 4. | 4. | 74.1 | 102080. | 90465. | 0.8380 |
| MONTHLY SUMMARY (JUN) | | | | | | | | | |
| MN | 311525. | 146922. | 458447. | 4. | 4. | 65.0 | 15279. | 90465. | 0.0035 |
| MX | 7271629. | 1507925. | 8779554. | 4. | 4. | 84.0 | 141426. | 90465. | 1.0000 |
| SM | 190433216. | 39914972. | 230348192. | 192. | 192. | 3651.2 | 5517242. | 4342338. | 41.4713 |
| AV | 3967359. | 831562. | 4798921. | 4. | 4. | 76.1 | 114943. | 90465. | 0.8640 |

ENTECH ENGINEERING   EZDOE - ELITE SOFTWARE DEVELOPMENT INC   DOE-2.1D 6/18/1996 2:10:24 PDL RUN 1
READING, PA 19603   4130.05 FT. MONMOUTH - MYER CENTER, NJ   FTMOAC0 - SIM MCA H2O ONLY W/OA SCHD1
RP_1 = HOURLY-REPORT



| | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | COOLING-TWR LOAD BTU/HR | COOLING-TWR SIZES RUNNING | COOLING-TWR MINIMUM CELL NO. | COOLING-TWR TOWER TEMP F | COOLING-TWR FAN ELEC BTU/HR | COOLING-TWR PUMP ELEC BTU/HR | COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT. |
|---|---|---|---|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----( 1) | ----( 6) | ----( 9) | ----(19) | ----(20) | ----(21) | ----(23) |
| 818 1 | 2536384. | 563673. | 3100056. | 4. | 4. | 74.0 | 116137. | 90465. | 0.7956 |
| 818 2 | 2334174. | 539448. | 2873622. | 4. | 4. | 73.0 | 113332. | 90465. | 0.7730 |
| 818 3 | 2237630. | 525018. | 2762648. | 4. | 4. | 73.0 | 108996. | 90465. | 0.7379 |
| 818 4 | 2064430. | 505578. | 2570008. | 4. | 4. | 72.0 | 107394. | 90465. | 0.7250 |
| 818 5 | 1877811. | 482605. | 2360416. | 4. | 4. | 71.0 | 105148. | 90465. | 0.7068 |
| 818 6 | 2772317. | 583158. | 3355475. | 4. | 4. | 72.0 | 135843. | 90465. | 0.9549 |
| 818 7 | 4335458. | 815039. | 5150497. | 4. | 4. | 75.2 | 141426. | 90465. | 1.0000 |
| 818 8 | 5256840. | 996690. | 6253530. | 4. | 4. | 78.1 | 141426. | 90465. | 1.0000 |
| 818 9 | 5808053. | 1127677. | 6935730. | 4. | 4. | 79.0 | 141426. | 90465. | 1.0000 |
| 81810 | 6218376. | 1223490. | 7441865. | 4. | 4. | 80.4 | 141426. | 90465. | 1.0000 |
| 81811 | 6601525. | 1324143. | 7925668. | 4. | 4. | 81.8 | 141426. | 90465. | 1.0000 |
| 81812 | 6680344. | 1356615. | 8036959. | 4. | 4. | 81.1 | 141426. | 90465. | 1.0000 |
| 81813 | 7079866. | 1446835. | 8526701. | 4. | 4. | 81.7 | 141426. | 90465. | 1.0000 |
| 81814 | 7281769. | 1502584. | 8784353. | 4. | 4. | 83.6 | 141426. | 90465. | 1.0000 |
| 81815 | 6946938. | 1441591. | 8388528. | 4. | 4. | 85.5 | 141426. | 90465. | 1.0000 |
| 81816 | 5940299. | 1224131. | 7164430. | 4. | 4. | 84.1 | 141426. | 90465. | 1.0000 |
| 81817 | 5673811. | 1151062. | 6824874. | 4. | 4. | 83.7 | 141426. | 90465. | 1.0000 |
| 81818 | 5161632. | 1040863. | 6202494. | 4. | 4. | 83.0 | 141426. | 90465. | 1.0000 |
| 81819 | 4581775. | 923552. | 5505327. | 4. | 4. | 82.3 | 141426. | 90465. | 1.0000 |
| 81820 | 4249036. | 858486. | 5107522. | 4. | 4. | 81.0 | 141426. | 90465. | 1.0000 |
| 81821 | 4032552. | 813154. | 4845706. | 4. | 4. | 81.0 | 139584. | 90465. | 0.9851 |
| 81822 | 3817701. | 777868. | 4595569. | 4. | 4. | 81.0 | 132694. | 90465. | 0.9294 |
| 81823 | 3615632. | 745860. | 4361492. | 4. | 4. | 81.0 | 125774. | 90465. | 0.8735 |
| 81824 | 3410250. | 714421. | 4124671. | 4. | 4. | 81.0 | 118273. | 90465. | 0.8129 |
| DAILY SUMMARY (AUG 18) | | | | | | | | | |
| MN | 1877811. | 482605. | 2360416. | 4. | 4. | 71.0 | 105148. | 90465. | 0.7068 |
| MX | 7281769. | 1502584. | 8784353. | 4. | 4. | 85.5 | 141426. | 90465. | 1.0000 |
| SM | 110514592. | 22683538. | 133198136. | 96. | 96. | 1899.6 | 3183145. | 2171169. | 22.2942 |
| AV | 4604775. | 945147. | 5549923. | 4. | 4. | 79.1 | 132631. | 90465. | 0.9289 |

| | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | COOLING-TWR LOAD BTU/HR | COOLING-TWR SIZES RUNNING | COOLING-TWR MINIMUM CELL NO. | COOLING-TWR TOWER TEMP F | COOLING-TWR FAN ELEC BTU/HR | COOLING-TWR PUMP ELEC BTU/HR | COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT. |
|---|---|---|---|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----( 1) | ----( 6) | ----( 9) | ----(19) | ----(20) | ----(21) | ----(23) |
| 819 1 | 3153977. | 676731. | 3830708. | 4. | 4. | 80.0 | 112520. | 90465. | 0.7664 |
| 819 2 | 3031609. | 654113. | 3685723. | 4. | 4. | 80.0 | 107338. | 90465. | 0.7245 |
| 819 3 | 2824754. | 625788. | 3450542. | 4. | 4. | 79.0 | 103213. | 90465. | 0.6912 |
| 819 4 | 2751367. | 611254. | 3362621. | 4. | 4. | 79.0 | 99803. | 90465. | 0.6636 |
| 819 5 | 2710398. | 605888. | 3316286. | 4. | 4. | 79.0 | 97969. | 90465. | 0.6488 |
| 819 6 | 3472536. | 712725. | 4185261. | 4. | 4. | 79.0 | 128439. | 90465. | 0.8950 |
| 819 7 | 4895288. | 952448. | 5847736. | 4. | 4. | 80.1 | 141426. | 90465. | 1.0000 |
| 819 8 | 5613660. | 1102562. | 6716222. | 4. | 4. | 80.3 | 141426. | 90465. | 1.0000 |
| 819 9 | 6122802. | 1213702. | 7336503. | 4. | 4. | 81.0 | 141426. | 90465. | 1.0000 |
| 81910 | 6208665. | 1239796. | 7448460. | 4. | 4. | 80.4 | 141426. | 90465. | 1.0000 |
| 81911 | 6379204. | 1272526. | 7651730. | 4. | 4. | 81.4 | 141426. | 90465. | 1.0000 |
| 81912 | 6527596. | 1316968. | 7844564. | 4. | 4. | 81.7 | 141426. | 90465. | 1.0000 |
| 81913 | 6886882. | 1405727. | 8292609. | 4. | 4. | 83.8 | 141426. | 90465. | 1.0000 |
| 81914 | 6712683. | 1386316. | 8098998. | 4. | 4. | 82.8 | 141426. | 90465. | 1.0000 |
| 81915 | 6310945. | 1279852. | 7590797. | 4. | 4. | 81.4 | 141426. | 90465. | 1.0000 |
| 81916 | 5313110. | 1051291. | 6364402. | 4. | 4. | 79.9 | 141426. | 90465. | 1.0000 |
| 81917 | 4922273. | 963622. | 5885894. | 4. | 4. | 80.1 | 141426. | 90465. | 1.0000 |
| 81918 | 4453642. | 879778. | 5333420. | 4. | 4. | 77.9 | 141426. | 90465. | 1.0000 |
| 81919 | 3853985. | 765521. | 4619506. | 4. | 4. | 77.1 | 141426. | 90465. | 1.0000 |
| 81920 | 3572672. | 718228. | 4290899. | 4. | 4. | 75.2 | 141426. | 90465. | 1.0000 |
| 81921 | 3253499. | 662527. | 3916027. | 4. | 4. | 73.2 | 141426. | 90465. | 1.0000 |
| 81922 | 2999245. | 619772. | 3619017. | 4. | 4. | 72.1 | 141426. | 90465. | 1.0000 |
| 81923 | 2720708. | 580004. | 3300711. | 4. | 4. | 71.0 | 139462. | 90465. | 0.9841 |
| 81924 | 2453723. | 544165. | 2997888. | 4. | 4. | 69.0 | 140928. | 90465. | 0.9960 |
| DAILY SUMMARY (AUG 19) | | | | | | | | | |
| MN | 2453723. | 544165. | 2997888. | 4. | 4. | 69.0 | 97969. | 90465. | 0.6488 |
| MX | 6886882. | 1405727. | 8292609. | 4. | 4. | 83.8 | 141426. | 90465. | 1.0000 |
| SM | 107145208. | 21841304. | 128986520. | 96. | 96. | 1884.3 | 3192497. | 2171169. | 22.3698 |
| AV | 4464384. | 910054. | 5374439. | 4. | 4. | 78.5 | 133021. | 90465. | 0.9321 |
| MONTHLY SUMMARY (AUG) | | | | | | | | | |
| MN | 1877811. | 482605. | 2360416. | 4. | 4. | 69.0 | 97969. | 90465. | 0.6488 |
| MX | 7281769. | 1502584. | 8784353. | 4. | 4. | 85.5 | 141426. | 90465. | 1.0000 |
| SM | 217659808. | 44524840. | 262184656. | 192. | 192. | 3783.8 | 6375641. | 4342338. | 44.6640 |
| AV | 4534580. | 927601. | 5462181. | 4. | 4. | 78.8 | 132826. | 90465. | 0.9305 |

| | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | COOLING-TWR LOAD BTU/HR | COOLING-TWR SIZES RUNNING | COOLING-TWR MINIMUM CELL NO. | COOLING-TWR TOWER TEMP F | COOLING-TWR FAN ELEC BTU/HR | COOLING-TWR PUMP ELEC BTU/HR | COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT. |
|---|---|---|---|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----( 1) | ----( 6) | ----( 9) | ----(19) | ----(20) | ----(21) | ----(23) |
| 10 9 1 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| 10 9 2 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| 10 9 3 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| 10 9 4 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| 10 9 5 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| 10 9 6 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| 10 9 7 | 310268. | 146328. | 456596. | 4. | 4. | 65.0 | 15275. | 90465. | 0.8641 |
| 10 9 8 | 350550. | 165372. | 515923. | 4. | 4. | 65.0 | 15402. | 90465. | 0.8713 |
| 10 9 9 | 361058. | 170342. | 531399. | 4. | 4. | 65.0 | 15435. | 90465. | 0.8731 |
| 10 910 | 375266. | 177062. | 552328. | 4. | 4. | 65.0 | 15479. | 90465. | 0.8756 |
| 10 911 | 335382. | 158200. | 493581. | 4. | 4. | 65.0 | 15355. | 90465. | 0.8686 |
| 10 912 | 322481. | 152101. | 474582. | 4. | 4. | 65.0 | 15314. | 90465. | 0.8663 |
| 10 913 | 343681. | 162124. | 505805. | 4. | 4. | 65.0 | 15381. | 90465. | 0.8700 |
| 10 914 | 379552. | 179090. | 558643. | 4. | 4. | 65.0 | 15492. | 90465. | 0.8763 |
| 10 915 | 347345. | 163856. | 511201. | 4. | 4. | 65.0 | 15392. | 90465. | 0.8707 |
| 10 916 | 387722. | 182955. | 570677. | 4. | 4. | 65.0 | 15517. | 90465. | 0.8778 |
| 10 917 | 339555. | 160173. | 499728. | 4. | 4. | 65.0 | 15368. | 90465. | 0.8693 |
| 10 918 | 341501. | 161093. | 502594. | 4. | 4. | 65.0 | 15374. | 90465. | 0.8697 |
| 10 919 | 311592. | 146954. | 458545. | 4. | 4. | 65.0 | 15280. | 90465. | 0.8643 |
| 10 920 | 321309. | 151547. | 472857. | 4. | 4. | 65.0 | 15310. | 90465. | 0.8661 |
| 10 921 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| 10 922 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| 10 923 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| 10 924 | 309472. | 145952. | 455424. | 4. | 4. | 65.0 | 15273. | 90465. | 0.8639 |
| DAILY SUMMARY (OCT 9) | | | | | | | | | |
| MN | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| MX | 387722. | 182955. | 570677. | 4. | 4. | 65.0 | 15517. | 90465. | 0.8778 |
| SM | 7861235. | 3708009. | 11569244. | 96. | 96. | 1560.0 | 367909. | 2171169. | 20.8113 |
| AV | 327551. | 154500. | 482052. | 4. | 4. | 65.0 | 15330. | 90465. | 0.8671 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/18/1996 2:10:24 PDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOACO - SIM MCA H20 ONLY W/OA SCHD1
RP_1 = HOURLY-REPORT 

| | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | COOLING-TWR LOAD BTU/HR | COOLING-TWR SIZES RUNNING | COOLING-TWR MINIMUM CELL NO. | COOLING-TWR TOWER TEMP F | COOLING-TWR FAN ELEC BTU/HR | COOLING-TWR PUMP ELEC BTU/HR | COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT. |
|---|---|---|---|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----( 1) | ----( 6) | ----( 9) | ----(19) | ----(20) | ----(21) | ----(23) |
| 1010 1 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| 1010 2 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| 1010 3 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| 1010 4 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| 1010 5 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| 1010 6 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| 1010 7 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| 1010 8 | 353627. | 166827. | 520455. | 4. | 4. | 65.0 | 15412. | 90465. | 0.8718 |
| 1010 9 | 410347. | 193662. | 604009. | 4. | 4. | 65.0 | 15586. | 90465. | 0.8816 |
| 101010 | 317377. | 149688. | 467065. | 4. | 4. | 65.0 | 15298. | 90465. | 0.8654 |
| 101011 | 396127. | 186932. | 583059. | 4. | 4. | 65.0 | 15543. | 90465. | 0.8792 |
| 101012 | 353404. | 166722. | 520126. | 4. | 4. | 65.0 | 15411. | 90465. | 0.8718 |
| 101013 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| 101014 | 310630. | 146499. | 457129. | 4. | 4. | 65.0 | 15277. | 90465. | 0.8641 |
| 101015 | 333411. | 157268. | 490679. | 4. | 4. | 65.0 | 15349. | 90465. | 0.8682 |
| 101016 | 316320. | 149189. | 465509. | 4. | 4. | 65.0 | 15295. | 90465. | 0.8652 |
| 101017 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| 101018 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| 101019 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| 101020 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| 101021 | 303316. | 143043. | 446359. | 4. | 4. | 65.0 | 15253. | 90465. | 0.8628 |
| 101022 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| 101023 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| 101024 | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| DAILY SUMMARY (OCT 10) | | | | | | | | | |
| MN | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| MX | 410347. | 193662. | 604009. | 4. | 4. | 65.0 | 15586. | 90465. | 0.8816 |
| SM | 7635397. | 3601262. | 11236656. | 96. | 96. | 1560.0 | 367192. | 2171169. | 20.7708 |
| AV | 318142. | 150053. | 468194. | 4. | 4. | 65.0 | 15300. | 90465. | 0.8654 |
| MONTHLY SUMMARY (OCT) | | | | | | | | | |
| MN | 302722. | 142762. | 445485. | 4. | 4. | 65.0 | 15251. | 90465. | 0.8627 |
| MX | 410347. | 193662. | 604009. | 4. | 4. | 65.0 | 15586. | 90465. | 0.8816 |
| SM | 15496632. | 7309271. | 22805900. | 192. | 192. | 3120.0 | 735101. | 4342338. | 41.5821 |
| AV | 322847. | 152276. | 475123. | 4. | 4. | 65.0 | 15315. | 90465. | 0.8663 |
| YEARLY SUMMARY | | | | | | | | | |
| MN | 302722. | 142762. | 445485. | 4. | 4. | 64.7 | 15251. | 90465. | 0.0035 |
| MX | 7281769. | 1507925. | 8784353. | 4. | 4. | 85.5 | 141426. | 90465. | 1.0000 |
| SM | 561717696. | 121525072. | 683242688. | 768. | 768. | 13882.7 | 17039352. | 17369352. | 168.4661 |
| AV | 2925613. | 632943. | 3558556. | 4. | 4. | 72.3 | 88747. | 90465. | 0.8774 |

ECO-9

ENTECH ENGINEERING
READING, PA 19603
RS_1 = HOURLY-REPORT

EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 16:24:42 SDL RUN 1
4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1



MCA System RESET
OFF-PEAK

| MMDDHH | 1SMCAHUS ZR SUPPLY ELECTRIC KW | 2SPERFC SUPPLY ELECTRIC KW | 3SPERFC SUPPLY ELECTRIC KW | 4SPERFC SUPPLY ELECTRIC KW |
|---|---|---|---|---|
| | ----(49) | ----(49) | ----(49) | ----(49) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 14792.671 | 749.415 | 749.415 | 878.909 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 13349.483 | 676.301 | 676.301 | 793.162 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 14071.077 | 712.858 | 712.858 | 836.035 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 14071.077 | 712.858 | 712.858 | 836.035 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 14792.671 | 749.415 | 749.415 | 878.909 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 13710.280 | 694.579 | 694.579 | 814.599 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 15153.468 | 767.693 | 767.693 | 900.346 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |

| | 1SMCAHUS ZR SUPPLY ELECTRIC KW | 2SPERFC SUPPLY ELECTRIC KW | 3SPERFC SUPPLY ELECTRIC KW | 4SPERFC SUPPLY ELECTRIC KW |
|---|---|---|---|---|
| | ----(49) | ----(49) | ----(49) | ----(49) |
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 14071.077 | 712.858 | 712.858 | 836.035 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 14071.077 | 712.858 | 712.858 | 836.035 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 15153.468 | 767.693 | 767.693 | 900.346 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 14431.874 | 731.136 | 731.136 | 857.472 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 14792.671 | 749.415 | 749.415 | 878.909 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| YEARLY SUMMARY | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 172460.891 | 8737.077 | 8737.077 | 10246.794 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |

| MMDDHH | SSZF2MID SUPPLY ELECTRIC KW ----(49) | SSFZ3MID SUPPLY ELECTRIC KW ----(49) | SSZF4MID SUPPLY ELECTRIC KW ----(49) | OSMCAHUS ZR SUPPLY ELECTRIC KW ----(49) |
|---|---|---|---|---|
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 11764.703 | 14392.478 | 14498.549 | 8640.309 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 10616.927 | 12988.333 | 13084.057 | 7797.351 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 11190.815 | 13690.405 | 13791.303 | 8218.829 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 11190.814 | 13690.405 | 13791.305 | 8218.830 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 11764.703 | 14392.479 | 14498.549 | 8640.308 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 10903.871 | 13339.369 | 13437.680 | 8008.090 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 12051.646 | 14743.514 | 14852.172 | 8851.047 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |

| | SSZF2MID SUPPLY ELECTRIC KW ----(49) | SSFZ3MID SUPPLY ELECTRIC KW ----(49) | SSZF4MID SUPPLY ELECTRIC KW ----(49) | OSMCAHUS ZR SUPPLY ELECTRIC KW ----(49) |
|---|---|---|---|---|
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 11190.815 | 13690.406 | 13791.303 | 8218.829 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 11190.815 | 13690.405 | 13791.303 | 8218.829 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 12051.646 | 14743.514 | 14852.174 | 8851.047 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 11477.759 | 14041.441 | 14144.926 | 8429.568 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 11764.702 | 14392.478 | 14498.549 | 8640.308 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| YEARLY SUMMARY | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 137159.203 | 167795.234 | 169031.859 | 100733.344 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |

| MMDDHH | 1EXTPER | 1EXTPER | 1INTPER | 1INTPER |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 71.5 | 73.0 | 71.5 | 72.6 |
| MX | 75.5 | 74.7 | 75.5 | 75.0 |
| SM | 35510.0 | 36101.0 | 35574.0 | 36066.1 |
| AV | 72.2 | 73.4 | 72.3 | 73.3 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 71.5 | 72.9 | 71.5 | 72.2 |
| MX | 75.5 | 74.4 | 75.5 | 74.8 |
| SM | 32182.0 | 32597.3 | 32318.0 | 32519.3 |
| AV | 72.5 | 73.4 | 72.8 | 73.2 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 71.5 | 73.2 | 71.5 | 72.7 |
| MX | 75.5 | 76.0 | 75.5 | 76.4 |
| SM | 34330.0 | 34462.2 | 34462.0 | 34458.2 |
| AV | 73.4 | 73.6 | 73.6 | 73.6 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 71.5 | 73.3 | 71.5 | 72.9 |
| MX | 75.5 | 80.6 | 75.5 | 80.6 |
| SM | 35110.0 | 34876.8 | 35018.0 | 34910.4 |
| AV | 75.0 | 74.5 | 74.8 | 74.6 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 71.5 | 73.2 | 71.5 | 73.5 |
| MX | 75.5 | 94.5 | 75.5 | 94.4 |
| SM | 37126.0 | 37292.4 | 37142.0 | 37430.1 |
| AV | 75.5 | 75.8 | 75.5 | 76.1 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 75.5 | 74.1 | 75.5 | 74.3 |
| MX | 75.5 | 75.9 | 75.5 | 76.8 |
| SM | 34428.0 | 34157.5 | 34428.0 | 34331.0 |
| AV | 75.5 | 74.9 | 75.5 | 75.3 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 75.5 | 74.2 | 75.5 | 74.4 |
| MX | 75.5 | 75.9 | 75.5 | 76.7 |
| SM | 38052.0 | 37801.7 | 38052.0 | 37965.0 |
| AV | 75.5 | 75.0 | 75.5 | 75.3 |

| | 1EXTPER | 1EXTPER | 1INTPER | 1INTPER |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| **MONTHLY SUMMARY (AUG)** | | | | |
| MN | 75.5 | 73.9 | 75.5 | 74.1 |
| MX | 75.5 | 76.0 | 75.5 | 76.4 |
| SM | 35334.0 | 35068.0 | 35334.0 | 35191.7 |
| AV | 75.5 | 74.9 | 75.5 | 75.2 |
| **MONTHLY SUMMARY (SEP)** | | | | |
| MN | 75.5 | 73.7 | 75.5 | 73.5 |
| MX | 75.5 | 75.6 | 75.5 | 76.3 |
| SM | 35334.0 | 34967.9 | 35334.0 | 35012.0 |
| AV | 75.5 | 74.7 | 75.5 | 74.8 |
| **MONTHLY SUMMARY (OCT)** | | | | |
| MN | 71.5 | 72.2 | 71.5 | 71.9 |
| MX | 75.5 | 78.5 | 75.5 | 77.4 |
| SM | 37988.0 | 37540.6 | 37848.0 | 37485.4 |
| AV | 75.4 | 74.5 | 75.1 | 74.4 |
| **MONTHLY SUMMARY (NOV)** | | | | |
| MN | 71.5 | 73.2 | 71.5 | 73.1 |
| MX | 75.5 | 81.5 | 75.5 | 81.9 |
| SM | 35488.0 | 35502.4 | 35356.0 | 35494.0 |
| AV | 73.9 | 74.0 | 73.7 | 73.9 |
| **MONTHLY SUMMARY (DEC)** | | | | |
| MN | 71.5 | 73.1 | 71.5 | 72.7 |
| MX | 75.5 | 75.0 | 75.5 | 75.0 |
| SM | 35782.0 | 36155.9 | 36082.0 | 36148.0 |
| AV | 72.7 | 73.5 | 73.3 | 73.5 |
| **YEARLY SUMMARY** | | | | |
| MN | 71.5 | 72.2 | 71.5 | 71.9 |
| MX | 75.5 | 94.5 | 75.5 | 94.4 |
| SM | 426664.0 | 426523.8 | 426948.0 | 427011.3 |
| AV | 74.4 | 74.4 | 74.4 | 74.4 |

| MMDDHH | 2EXTPER | 2EXTPER | 2INTPER | 2INTPER |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 71.5 | 71.9 | 71.5 | 71.9 |
| MX | 75.5 | 75.7 | 75.5 | 75.9 |
| SM | 35246.0 | 35940.1 | 35274.0 | 35960.8 |
| AV | 71.6 | 73.0 | 71.7 | 73.1 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 71.5 | 72.0 | 71.5 | 72.0 |
| MX | 75.5 | 75.4 | 75.5 | 76.3 |
| SM | 31858.0 | 32447.7 | 31938.0 | 32486.7 |
| AV | 71.8 | 73.1 | 71.9 | 73.2 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 71.5 | 72.6 | 71.5 | 72.6 |
| MX | 75.5 | 80.1 | 75.5 | 81.0 |
| SM | 33826.0 | 34445.8 | 33898.0 | 34527.9 |
| AV | 72.3 | 73.6 | 72.4 | 73.8 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 71.5 | 72.9 | 71.5 | 72.9 |
| MX | 75.5 | 97.0 | 75.5 | 98.5 |
| SM | 34778.0 | 37635.9 | 34810.0 | 37986.0 |
| AV | 74.3 | 80.4 | 74.4 | 81.2 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 71.5 | 67.7 | 71.5 | 67.8 |
| MX | 75.5 | 102.3 | 75.5 | 103.7 |
| SM | 36750.0 | 39135.3 | 36766.0 | 39408.5 |
| AV | 74.7 | 79.5 | 74.7 | 80.1 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 71.5 | 73.4 | 71.5 | 73.4 |
| MX | 75.5 | 75.6 | 75.5 | 75.8 |
| SM | 34420.0 | 33889.8 | 34420.0 | 33909.2 |
| AV | 75.5 | 74.3 | 75.5 | 74.4 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 75.5 | 73.6 | 75.5 | 73.6 |
| MX | 75.5 | 75.5 | 75.5 | 75.6 |
| SM | 38052.0 | 37521.9 | 38052.0 | 37540.6 |
| AV | 75.5 | 74.4 | 75.5 | 74.5 |

| | 2EXTPER | 2EXTPER | 2INTPER | 2INTPER |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 71.5 | 72.5 | 71.5 | 72.5 |
| MX | 75.5 | 75.5 | 75.5 | 75.6 |
| SM | 35282.0 | 34749.0 | 35282.0 | 34777.0 |
| AV | 75.4 | 74.2 | 75.4 | 74.3 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 71.5 | 71.4 | 71.5 | 71.8 |
| MX | 75.5 | 74.9 | 75.5 | 75.0 |
| SM | 35194.0 | 34609.1 | 35222.0 | 34646.9 |
| AV | 75.2 | 74.0 | 75.3 | 74.0 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 71.5 | 67.4 | 71.5 | 68.4 |
| MX | 75.5 | 89.9 | 75.5 | 92.3 |
| SM | 37412.0 | 38115.1 | 37536.0 | 38482.9 |
| AV | 74.2 | 75.6 | 74.5 | 76.4 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 71.5 | 72.7 | 71.5 | 72.7 |
| MX | 75.5 | 90.0 | 75.5 | 90.7 |
| SM | 35128.0 | 36305.1 | 35228.0 | 36532.8 |
| AV | 73.2 | 75.6 | 73.4 | 76.1 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 71.5 | 72.6 | 71.5 | 72.6 |
| MX | 75.5 | 79.5 | 75.5 | 80.7 |
| SM | 35366.0 | 36052.0 | 35406.0 | 36115.1 |
| AV | 71.9 | 73.3 | 72.0 | 73.4 |
| YEARLY SUMMARY | | | | |
| MN | 71.5 | 67.4 | 71.5 | 67.8 |
| MX | 75.5 | 102.3 | 75.5 | 103.7 |
| SM | 423312.0 | 430846.8 | 423832.0 | 432374.6 |
| AV | 73.8 | 75.1 | 73.9 | 75.4 |

| MMDDHH | 3EXTPER | 3EXTPER | 3INTPER | 3INTPER |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 71.5 | 71.9 | 71.5 | 71.9 |
| MX | 75.5 | 75.7 | 75.5 | 75.9 |
| SM | 35246.0 | 35940.1 | 35274.0 | 35960.8 |
| AV | 71.6 | 73.0 | 71.7 | 73.1 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 71.5 | 72.0 | 71.5 | 72.0 |
| MX | 75.5 | 75.4 | 75.5 | 76.3 |
| SM | 31858.0 | 32447.7 | 31938.0 | 32486.7 |
| AV | 71.8 | 73.1 | 71.9 | 73.2 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 71.5 | 72.6 | 71.5 | 72.6 |
| MX | 75.5 | 80.1 | 75.5 | 81.0 |
| SM | 33826.0 | 34445.8 | 33898.0 | 34527.9 |
| AV | 72.3 | 73.6 | 72.4 | 73.8 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 71.5 | 72.9 | 71.5 | 72.9 |
| MX | 75.5 | 97.0 | 75.5 | 98.5 |
| SM | 34778.0 | 37635.8 | 34810.0 | 37986.0 |
| AV | 74.3 | 80.4 | 74.4 | 81.2 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 71.5 | 67.7 | 71.5 | 67.8 |
| MX | 75.5 | 102.3 | 75.5 | 103.7 |
| SM | 36750.0 | 39135.4 | 36766.0 | 39408.5 |
| AV | 74.7 | 79.5 | 74.7 | 80.1 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 71.5 | 73.4 | 71.5 | 73.4 |
| MX | 75.5 | 75.6 | 75.5 | 75.8 |
| SM | 34420.0 | 33889.8 | 34420.0 | 33909.2 |
| AV | 75.5 | 74.3 | 75.5 | 74.4 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 75.5 | 73.6 | 75.5 | 73.6 |
| MX | 75.5 | 75.5 | 75.5 | 75.6 |
| SM | 38052.0 | 37522.0 | 38052.0 | 37540.6 |
| AV | 75.5 | 74.4 | 75.5 | 74.5 |

| | 3EXTPER | 3EXTPER | 3INTPER | 3INTPER |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 71.5 | 72.5 | 71.5 | 72.5 |
| MX | 75.5 | 75.5 | 75.5 | 75.6 |
| SM | 35282.0 | 34749.0 | 35282.0 | 34777.0 |
| AV | 75.4 | 74.2 | 75.4 | 74.3 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 71.5 | 71.4 | 71.5 | 71.8 |
| MX | 75.5 | 74.9 | 75.5 | 75.0 |
| SM | 35194.0 | 34609.1 | 35222.0 | 34646.9 |
| AV | 75.2 | 74.0 | 75.3 | 74.0 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 71.5 | 67.4 | 71.5 | 68.4 |
| MX | 75.5 | 89.9 | 75.5 | 92.3 |
| SM | 37412.0 | 38115.0 | 37536.0 | 38482.9 |
| AV | 74.2 | 75.6 | 74.5 | 76.4 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 71.5 | 72.7 | 71.5 | 72.7 |
| MX | 75.5 | 90.0 | 75.5 | 90.7 |
| SM | 35128.0 | 36304.9 | 35228.0 | 36532.8 |
| AV | 73.2 | 75.6 | 73.4 | 76.1 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 71.5 | 72.6 | 71.5 | 72.6 |
| MX | 75.5 | 79.5 | 75.5 | 80.7 |
| SM | 35366.0 | 36051.9 | 35406.0 | 36115.1 |
| AV | 71.9 | 73.3 | 72.0 | 73.4 |
| YEARLY SUMMARY | | | | |
| MN | 71.5 | 67.4 | 71.5 | 67.8 |
| MX | 75.5 | 102.3 | 75.5 | 103.7 |
| SM | 423312.0 | 430846.5 | 423832.0 | 432374.6 |
| AV | 73.8 | 75.1 | 73.9 | 75.4 |

| MMDDHH | 4EXTPER | 4EXTPER | 4INTPER | 4INTPER |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 71.5 | 71.8 | 71.5 | 71.8 |
| MX | 71.5 | 73.4 | 71.5 | 73.4 |
| SM | 35178.0 | 35849.9 | 35178.0 | 35855.1 |
| AV | 71.5 | 72.9 | 71.5 | 72.9 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 71.5 | 71.9 | 71.5 | 71.9 |
| MX | 75.5 | 73.8 | 75.5 | 74.2 |
| SM | 31754.0 | 32359.5 | 31766.0 | 32368.8 |
| AV | 71.5 | 72.9 | 71.5 | 72.9 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 71.5 | 72.5 | 71.5 | 72.5 |
| MX | 75.5 | 77.0 | 75.5 | 77.5 |
| SM | 33542.0 | 34226.3 | 33578.0 | 34248.9 |
| AV | 71.7 | 73.1 | 71.7 | 73.2 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 71.5 | 72.7 | 71.5 | 72.7 |
| MX | 75.5 | 90.5 | 75.5 | 91.5 |
| SM | 34514.0 | 35842.1 | 34566.0 | 36040.7 |
| AV | 73.7 | 76.6 | 73.9 | 77.0 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 71.5 | 64.0 | 71.5 | 64.3 |
| MX | 75.5 | 98.4 | 75.5 | 99.5 |
| SM | 36486.0 | 37680.8 | 36530.0 | 37855.1 |
| AV | 74.2 | 76.6 | 74.2 | 76.9 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 71.5 | 72.2 | 71.5 | 72.2 |
| MX | 75.5 | 75.6 | 75.5 | 75.7 |
| SM | 34292.0 | 33824.8 | 34312.0 | 33847.2 |
| AV | 75.2 | 74.2 | 75.2 | 74.2 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 71.5 | 73.0 | 71.5 | 73.1 |
| MX | 75.5 | 75.5 | 75.5 | 75.6 |
| SM | 38036.0 | 37484.3 | 38040.0 | 37505.3 |
| AV | 75.5 | 74.4 | 75.5 | 74.4 |

| | 4EXTPER THERMOST SETPOINT F ----( 7) | 4EXTPER ZONE TEMP F ----( 6) | 4INTPER THERMOST SETPOINT F ----( 7) | 4INTPER ZONE TEMP F ----( 6) |
|---|---|---|---|---|
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 71.5 | 71.1 | 71.5 | 71.3 |
| MX | 75.5 | 75.4 | 75.5 | 75.6 |
| SM | 35130.0 | 34658.8 | 35154.0 | 34689.6 |
| AV | 75.1 | 74.1 | 75.1 | 74.1 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 71.5 | 69.3 | 71.5 | 69.7 |
| MX | 75.5 | 74.8 | 75.5 | 75.0 |
| SM | 34906.0 | 34459.6 | 34994.0 | 34506.8 |
| AV | 74.6 | 73.6 | 74.8 | 73.7 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 71.5 | 62.4 | 71.5 | 63.5 |
| MX | 75.5 | 82.7 | 75.5 | 83.9 |
| SM | 36836.0 | 36782.7 | 36960.0 | 37049.1 |
| AV | 73.1 | 73.0 | 73.3 | 73.5 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 71.5 | 72.6 | 71.5 | 72.6 |
| MX | 75.5 | 85.0 | 75.5 | 85.4 |
| SM | 34612.0 | 35485.2 | 34648.0 | 35525.7 |
| AV | 72.1 | 73.9 | 72.2 | 74.0 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 71.5 | 72.5 | 71.5 | 72.5 |
| MX | 75.5 | 76.3 | 75.5 | 77.0 |
| SM | 35226.0 | 35889.2 | 35246.0 | 35903.3 |
| AV | 71.6 | 72.9 | 71.6 | 73.0 |
| YEARLY SUMMARY | | | | |
| MN | 71.5 | 62.4 | 71.5 | 63.5 |
| MX | 75.5 | 98.4 | 75.5 | 99.5 |
| SM | 420512.0 | 424543.3 | 420972.0 | 425395.6 |
| AV | 73.3 | 74.0 | 73.4 | 74.2 |

| MMDDHH | 2MIDL | 2MIDL | 3MIDL | 3MIDL |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 71.5 | 73.3 | 71.5 | 73.3 |
| MX | 75.5 | 75.3 | 75.5 | 75.4 |
| SM | 36454.0 | 36298.1 | 36534.0 | 36313.4 |
| AV | 74.1 | 73.8 | 74.3 | 73.8 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 71.5 | 73.2 | 71.5 | 73.2 |
| MX | 75.5 | 74.9 | 75.5 | 75.0 |
| SM | 32970.0 | 32778.8 | 33002.0 | 32791.7 |
| AV | 74.3 | 73.8 | 74.3 | 73.9 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 71.5 | 73.4 | 71.5 | 73.4 |
| MX | 75.5 | 76.5 | 75.5 | 76.6 |
| SM | 35190.0 | 34672.1 | 35214.0 | 34685.3 |
| AV | 75.2 | 74.1 | 75.2 | 74.1 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 71.5 | 73.5 | 71.5 | 73.5 |
| MX | 75.5 | 81.3 | 75.5 | 81.3 |
| SM | 35326.0 | 35059.6 | 35326.0 | 35068.4 |
| AV | 75.5 | 74.9 | 75.5 | 74.9 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 75.5 | 73.8 | 75.5 | 73.8 |
| MX | 75.5 | 95.1 | 75.5 | 95.1 |
| SM | 37146.0 | 37408.5 | 37146.0 | 37411.0 |
| AV | 75.5 | 76.0 | 75.5 | 76.0 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 75.5 | 74.2 | 75.5 | 74.3 |
| MX | 75.5 | 75.9 | 75.5 | 75.9 |
| SM | 34428.0 | 34197.1 | 34428.0 | 34197.2 |
| AV | 75.5 | 75.0 | 75.5 | 75.0 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 75.5 | 74.3 | 75.5 | 74.3 |
| MX | 75.5 | 75.9 | 75.5 | 75.9 |
| SM | 38052.0 | 37830.5 | 38052.0 | 37829.3 |
| AV | 75.5 | 75.1 | 75.5 | 75.1 |

| | 2MIDL | 2MIDL | 3MIDL | 3MIDL |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 75.5 | 74.2 | 75.5 | 74.2 |
| MX | 75.5 | 76.0 | 75.5 | 76.0 |
| SM | 35334.0 | 35123.2 | 35334.0 | 35124.1 |
| AV | 75.5 | 75.0 | 75.5 | 75.1 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 75.5 | 74.0 | 75.5 | 74.0 |
| MX | 75.5 | 75.8 | 75.5 | 75.8 |
| SM | 35334.0 | 35029.4 | 35334.0 | 35032.2 |
| AV | 75.5 | 74.8 | 75.5 | 74.9 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 75.5 | 73.6 | 75.5 | 73.6 |
| MX | 75.5 | 77.8 | 75.5 | 77.8 |
| SM | 38052.0 | 37700.6 | 38052.0 | 37708.9 |
| AV | 75.5 | 74.8 | 75.5 | 74.8 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 71.5 | 73.4 | 71.5 | 73.4 |
| MX | 75.5 | 83.3 | 75.5 | 83.4 |
| SM | 36204.0 | 35745.0 | 36220.0 | 35760.0 |
| AV | 75.4 | 74.5 | 75.5 | 74.5 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 71.5 | 73.3 | 71.5 | 73.3 |
| MX | 75.5 | 75.5 | 75.5 | 75.5 |
| SM | 36554.0 | 36370.6 | 36606.0 | 36385.4 |
| AV | 74.3 | 73.9 | 74.4 | 74.0 |
| YEARLY SUMMARY | | | | |
| MN | 71.5 | 73.2 | 71.5 | 73.2 |
| MX | 75.5 | 95.1 | 75.5 | 95.1 |
| SM | 431044.0 | 428213.5 | 431248.0 | 428306.9 |
| AV | 75.1 | 74.7 | 75.2 | 74.7 |

| MMDDHH | 4MIDL THERMOST SETPOINT F ----( 7) | 4MIDL ZONE TEMP F ----( 6) | OINTEXTPER THERMOST SETPOINT F ----( 7) | OINTEXTPER ZONE TEMP F ----( 6) |
|---|---|---|---|---|
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 71.5 | 72.8 | 71.5 | 73.0 |
| MX | 75.5 | 74.2 | 75.5 | 74.7 |
| SM | 35234.0 | 35984.3 | 35338.0 | 36065.6 |
| AV | 71.6 | 73.1 | 71.8 | 73.3 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 71.5 | 72.7 | 71.5 | 72.9 |
| MX | 75.5 | 73.8 | 75.5 | 74.4 |
| SM | 31802.0 | 32483.2 | 31978.0 | 32558.7 |
| AV | 71.6 | 73.2 | 72.0 | 73.3 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 71.5 | 73.1 | 71.5 | 73.2 |
| MX | 75.5 | 75.6 | 75.5 | 75.9 |
| SM | 33654.0 | 34320.2 | 34014.0 | 34409.7 |
| AV | 71.9 | 73.3 | 72.7 | 73.5 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 71.5 | 73.1 | 71.5 | 73.3 |
| MX | 75.5 | 79.0 | 75.5 | 80.0 |
| SM | 34670.0 | 34669.6 | 35038.0 | 34865.2 |
| AV | 74.1 | 74.1 | 74.9 | 74.5 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 71.5 | 71.1 | 71.5 | 73.4 |
| MX | 75.5 | 93.6 | 75.5 | 96.4 |
| SM | 36922.0 | 37044.4 | 37134.0 | 37482.6 |
| AV | 75.0 | 75.3 | 75.5 | 76.2 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 75.5 | 73.8 | 75.5 | 74.3 |
| MX | 75.5 | 75.8 | 75.5 | 76.1 |
| SM | 34428.0 | 34062.1 | 34428.0 | 34270.7 |
| AV | 75.5 | 74.7 | 75.5 | 75.2 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 75.5 | 74.0 | 75.5 | 74.5 |
| MX | 75.5 | 75.7 | 75.5 | 76.1 |
| SM | 38052.0 | 37725.7 | 38052.0 | 37963.9 |
| AV | 75.5 | 74.9 | 75.5 | 75.3 |

| | 4MIDL THERMOST SETPOINT F | 4MIDL ZONE TEMP F | 0INTEXTPER THERMOST SETPOINT F | 0INTEXTPER ZONE TEMP F |
|---|---|---|---|---|
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 75.5 | 73.6 | 75.5 | 74.2 |
| MX | 75.5 | 75.9 | 75.5 | 76.2 |
| SM | 35334.0 | 34970.3 | 35334.0 | 35203.5 |
| AV | 75.5 | 74.7 | 75.5 | 75.2 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 71.5 | 72.6 | 75.5 | 73.9 |
| MX | 75.5 | 75.4 | 75.5 | 75.9 |
| SM | 35298.0 | 34828.8 | 35334.0 | 35090.8 |
| AV | 75.4 | 74.4 | 75.5 | 75.0 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 71.5 | 68.6 | 71.5 | 72.5 |
| MX | 75.5 | 78.8 | 75.5 | 82.6 |
| SM | 37560.0 | 37208.1 | 38020.0 | 37663.4 |
| AV | 74.5 | 73.8 | 75.4 | 74.7 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 71.5 | 73.1 | 71.5 | 73.2 |
| MX | 75.5 | 80.4 | 75.5 | 81.4 |
| SM | 34772.0 | 35340.7 | 35460.0 | 35499.5 |
| AV | 72.4 | 73.6 | 73.9 | 74.0 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 71.5 | 72.9 | 71.5 | 73.1 |
| MX | 75.5 | 74.4 | 75.5 | 75.4 |
| SM | 35334.0 | 36026.2 | 35518.0 | 36129.8 |
| AV | 71.8 | 73.2 | 72.2 | 73.4 |
| YEARLY SUMMARY | | | | |
| MN | 71.5 | 68.6 | 71.5 | 72.5 |
| MX | 75.5 | 93.6 | 75.5 | 96.4 |
| SM | 423060.0 | 424663.5 | 425648.0 | 427203.4 |
| AV | 73.8 | 74.0 | 74.2 | 74.5 |

| EQUIPMENT | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 4.648 | 1 | 1 | | | | | | | | | | | | | | | |
| HERM-CENT-CHLR | 7.800 | 1 | 1 | | | | | | | | | | | | | | | |
| COOLING-TWR | 2.379 | 4 | 4 | | | | | | | | | | | | | | | |

REPORT- PS-C EQUIPMENT PART LOAD OPERATION WEATHER FILE- NEWARK, NJ

| EQUIPMENT | HOURS AT PERCENT PART LOAD RATIO 0 -- 10 | -- 20 | -- 30 | -- 40 | -- 50 | -- 60 | -- 70 | -- 80 | -- 90 | -- 100 | - 110+ | TOTAL HOURS | ANNUAL LOAD (MBTU) | FALSE LOAD (MBTU) | ELEC USED (MBTU) | THERMAL USED (MBTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 2736 | 641 | 642 | 475 | 338 | 142 | 64 | 33 | 12 | 4 | 1 | 5088 | 3673.8 | 0.0 | 236.0 | 5321.7 |
| | 2736 | 641 | 642 | 475 | 338 | 142 | 64 | 33 | 12 | 4 | 1 | | | | | |
| HERM-CENT-CHLR | 1064 | 511 | 805 | 487 | 340 | 337 | 117 | 11 | 0 | 0 | 0 | 3672 | 8597.3 | 0.0 | 1960.2 | 0.0 |
| | 1064 | 511 | 805 | 487 | 340 | 337 | 117 | 11 | 0 | 0 | 0 | | | | | |
| COOLING-TWR | 1229 | 566 | 601 | 328 | 161 | 118 | 149 | 126 | 106 | 100 | 188 | 3672 | 10557.6 | 0.0 | 814.0 | 0.0 |
| | 1229 | 566 | 601 | 328 | 161 | 118 | 149 | 126 | 106 | 100 | 188 | | | | | |

HOT LOOP CIRCULATION PUMP ELECTRICAL USE = 174.8 MBTU
COLD LOOP CIRCULATION PUMP ELECTRICAL USE = 907.9 MBTU

NOTES TO TABLE
1) THE FIRST PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE HOURLY OPERATING CAPACITY

2) THE SECOND PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE TOTAL INSTALLED CAPACITY

| HEATING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HW-BOILER | 3673.8 | 100.0 |
| LOAD SATISFIED | 3673.8 | 100.0 |
| TOTAL LOAD ON PLANT | 3673.8 | |

| COOLING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HERM-CENT-CHLR | 8597.3 | 100.0 |
| LOAD SATISFIED | 8597.3 | 100.0 |
| TOTAL LOAD ON PLANT | 8597.3 | |

| ELECTRICAL LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| ELECTRICITY | 23097.8 | 100.0 |
| LOAD SATISFIED | 23097.8 | 100.0 |
| TOTAL LOAD ON PLANT | 23097.5 | |

TOWER ABOVE DESIGN TEMPERATURE OF 85.F 1 HOURS
MAXIMUM TOWER EXIT TEMPERATURE = 85.F

SUMMARY OF LOADS MET

| TYPE OF LOAD | TOTAL LOAD (MBTU) | LOAD SATISFIED (MBTU) | TOTAL OVERLOAD (MBTU) | PEAK OVERLOAD (MBTU) | HOURS OVERLOADED |
|---|---|---|---|---|---|
| HEATING LOADS | 3673.8 | 3673.8 | 0.000 | 0.000 | 0 |
| COOLING LOADS | 8597.3 | 8597.3 | 0.000 | 0.000 | 0 |
| ELECTRICAL LOADS | 23097.5 | 23097.8 | 0.000 | 0.000 | 0 |

REPORT- PS-H EQUIPMENT USE STATISTICS WEATHER FILE- NEWARK, NJ

| E Q U I P M E N T | AVG OPER RATIO | MAX LOAD (MBTU) | MON DAY HR | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 0.155 | 4.648 | 2 20 3 | 4.648 | 5088 | | | | | | | | |
| HERM-CENT-CHLR | 0.300 | 6.956 | 8 18 15 | 7.800 | 3672 | | | | | | | | |
| COOLING-TWR | 0.302 | 8.375 | 8 18 15 | 2.379 | 14688 | | | | | | | | |

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|---|---|---|
| CATEGORY OF USE | | |
| SPACE HEAT | 235.96 | 5321.68 |
| SPACE COOL | 2774.24 | 0.00 |
| HVAC AUX | 5307.58 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 10258.56 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 4521.40 | 0.00 |
| TOTAL | 23097.73 | 5321.68 |

TOTAL SITE ENERGY 28419.50 MBTU 86.2 KBTU/SQFT-YR GROSS-AREA 86.2 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 74684.37 MBTU 226.6 KBTU/SQFT-YR GROSS-AREA 226.6 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 1.8
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

| MMDDHH | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | HERM-CEN T-CHLR ENTERING COND TEM F | HERM-CEN T-CHLR LEAVING COLD TEM F | COOLING-TWR WATER FLOWRATE GAL/MIN | COOLING-TWR RANGE R | COOLING-TWR FAN ELEC BTU/HR | COOLING-TWR PUMP ELEC BTU/HR |
|---|---|---|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----(12) | ----(13) | ----( 8) | ----(10) | ----(20) | ----(21) |
| MONTHLY SUMMARY (JAN) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (FEB) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (MAR) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (APR) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (MAY) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 4734563. | 885751. | 76.9 | 55.5 | 1950.0 | 5.8 | 140410. | 90465. |
| SM | 204805856. | 69268752. | 16615.6 | 13621.8 | 491400.0 | 301.9 | 29106086. | 22797268. |
| AV | 416272. | 140790. | 33.8 | 27.7 | 998.8 | 0.6 | 59159. | 46336. |
| MONTHLY SUMMARY (JUN) | | | | | | | | |
| MN | 289191. | 136381. | 64.5 | 53.9 | 1950.0 | 0.5 | 106147. | 90465. |
| MX | 4389327. | 853501. | 80.0 | 55.4 | 1950.0 | 5.5 | 140410. | 90465. |
| SM | 815711680. | 206956576. | 31425.9 | 24815.9 | 889200.1 | 1086.1 | 59935544. | 41252200. |
| AV | 1788841. | 453852. | 68.9 | 54.4 | 1950.0 | 2.4 | 131438. | 90465. |
| MONTHLY SUMMARY (JUL) | | | | | | | | |
| MN | 341720. | 161215. | 65.0 | 53.9 | 1950.0 | 0.6 | 114031. | 90465. |
| MX | 4326828. | 847222. | 79.0 | 55.4 | 1950.0 | 5.4 | 140410. | 90465. |
| SM | 1108698368. | 261142528. | 35685.2 | 27505.7 | 982800.1 | 1445.9 | 68744472. | 45594536. |
| AV | 2199798. | 518140. | 70.8 | 54.6 | 1950.0 | 2.9 | 136398. | 90465. |

| | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | HERM-CEN T-CHLR ENTERING COND TEM F | HERM-CEN T-CHLR LEAVING COLD TEM F | COOLING-TWR WATER FLOWRATE GAL/MIN | COOLING-TWR RANGE R | COOLING-TWR FAN ELEC BTU/HR | COOLING-TWR PUMP ELEC BTU/HR |
|---|---|---|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----(12) | ----(13) | ----( 8) | ----(10) | ----(20) | ----(21) |
| MONTHLY SUMMARY (AUG) | | | | | | | | |
| MN | 289191. | 136381. | 64.9 | 53.9 | 1950.0 | 0.5 | 108731. | 90465. |
| MX | 4591155. | 926070. | 83.0 | 55.5 | 1950.0 | 5.7 | 140410. | 90465. |
| SM | 897506496. | 223031584. | 33148.2 | 25491.5 | 912600.1 | 1187.4 | 62609704. | 42337780. |
| AV | 1917749. | 476563. | 70.8 | 54.5 | 1950.0 | 2.5 | 133781. | 90465. |
| MONTHLY SUMMARY (SEP) | | | | | | | | |
| MN | 289191. | 136381. | 65.0 | 53.9 | 1950.0 | 0.5 | 106147. | 90465. |
| MX | 3365087. | 676081. | 78.0 | 55.0 | 1950.0 | 4.2 | 140410. | 90465. |
| SM | 577829248. | 172632304. | 32075.1 | 25371.7 | 912600.1 | 808.1 | 59208216. | 42337784. |
| AV | 1234678. | 368872. | 68.5 | 54.2 | 1950.0 | 1.7 | 126513. | 90465. |
| MONTHLY SUMMARY (OCT) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 2556596. | 554104. | 70.0 | 54.7 | 1950.0 | 3.3 | 140212. | 90465. |
| SM | 114714480. | 49044764. | 16451.0 | 13588.0 | 491400.0 | 188.9 | 28122556. | 22797272. |
| AV | 227608. | 97311. | 32.6 | 27.0 | 975.0 | 0.4 | 55799. | 45233. |
| MONTHLY SUMMARY (NOV) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (DEC) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| YEARLY SUMMARY | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 4734563. | 926070. | 83.0 | 55.5 | 1950.0 | 5.8 | 140410. | 90465. |
| SM | 3719266048. | 982076544. | 165401.0 | 130394.6 | 4680000.5 | 5018.3 | 307726592. | 217116832. |
| AV | 648408. | 171213. | 28.8 | 22.7 | 815.9 | 0.9 | 53648. | 37852. |

| MMDDHH | HW-BOILER LOAD BTU/HR ----( 1) | HW-BOILER ELECTRIC USE BTU/HR ----( 3) | HW-BOILER FUEL USE BTU/HR ----( 4) | HW-BOILER CAPACITY RUNNING BTU/HR ----( 7) |
|---|---|---|---|---|
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 162239. | 14277. | 254516. | 4648277. |
| MX | 4169796. | 102262. | 5092058. | 4648277. |
| SM | 823017984. | 45530488. | 1153649792. | 2286952448. |
| AV | 1672801. | 92542. | 2344817. | 4648278. |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 15403. | 1356. | 24165. | 4648277. |
| MX | 4648277. | 102262. | 5577933. | 4648277. |
| SM | 719964032. | 38768240. | 1003392000. | 2063835008. |
| AV | 1621541. | 87316. | 2259892. | 4648277. |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 15403. | 1356. | 24165. | 4648277. |
| MX | 2533265. | 102262. | 3359322. | 4648277. |
| SM | 464817216. | 33754812. | 693906112. | 2175393536. |
| AV | 993199. | 72126. | 1482705. | 4648277. |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 15403. | 1356. | 24165. | 4648277. |
| MX | 1909794. | 102262. | 2670332. | 4648277. |
| SM | 144827648. | 11859749. | 222878928. | 2175393792. |
| AV | 309461. | 25341. | 476237. | 4648278. |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 348861. | 30700. | 547284. | 4648277. |
| SM | 15838597. | 1393796. | 24847180. | 1115586560. |
| AV | 32192. | 2833. | 50502. | 2267452. |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |

| | HW-BOILER LOAD BTU/HR ----( 1) | HW-BOILER ELECTRIC USE BTU/HR ----( 3) | HW-BOILER FUEL USE BTU/HR ----( 4) | HW-BOILER CAPACITY RUNNING BTU/HR ----( 7) |
|---|---|---|---|---|
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 901315. | 79316. | 1413960. | 4648277. |
| SM | 27343130. | 2406196. | 42895200. | 1171365888. |
| AV | 54252. | 4774. | 85110. | 2324139. |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 15403. | 1356. | 24165. | 4648277. |
| MX | 2355515. | 102262. | 3164516. | 4648277. |
| SM | 319433728. | 24739036. | 484560256. | 2231172864. |
| AV | 665487. | 51540. | 1009501. | 4648277. |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 15403. | 1356. | 24165. | 4648277. |
| MX | 2979125. | 102262. | 3842268. | 4648277. |
| SM | 727572096. | 42909596. | 1036092032. | 2286952448. |
| AV | 1478805. | 87215. | 2105878. | 4648278. |
| YEARLY SUMMARY | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 4648277. | 102262. | 5577933. | 4648277. |
| SM | 3242814464. | 201361920. | 4662221312. | 15506653184. |
| AV | 565344. | 35105. | 812800. | 2703392. |

REPORT- EV-B COST OF FUELS AND UTILITIES

| ENERGY SOURCE | ENERGY UNIT (BTU) | UNIFORM COST /UNIT ($) | COST ESCLA-ATION RATE | MIN MNTHLY CHARGE ($) | RATE LIMIT /UNIT ($) | FIXED MNTHLY CHARG1 ($) | FIXED MNTHLY CHARG2 ($) | ASSIGN-SCHEDULE (U-NAME) | ASSIGN-CHARGE1 (U-NAME) | ASSIGN-CHARGE2 (U-NAME) |
|---|---|---|---|---|---|---|---|---|---|---|
| ELECTRIC | 3413.00 | 0.0000 | 5.000 | 0.00 | 1000000.000 | 0.00 | 0.00 | YELEC1 | | |
| FUEL-OIL | 138690.00 | 0.5900 | 5.000 | 0.00 | 1000000.000 | 0.00 | 0.00 | | | |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 16:24:42 EDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

| MONTH | CHARGE-ASSIGNMENT (U-NAME) | LENGTH (HR/MO) | CONSUMPTION BY C-A (KWH) | ENERGY CHARGE ($) | MEASURED DEMAND (KW) | BILLING DEMAND (KW) | DEMAND CHARGE ($) | TOTAL CHARGES ($) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| | 4OFPKKWH | 744 | 492626. | 35419.79 | 1461. | 1461. | 0.00 | |
| | EONPKDMHTG | 252 | 299363. | 0.00 | 1461. | 1461. | 12523.13 | |
| | | | | | | | | 47942.91 |
| FEB | | | | | | | | |
| | 4OFPKKWH | 672 | 443469. | 31885.46 | 1461. | 1461. | 0.00 | |
| | EONPKDMHTG | 228 | 269721. | 0.00 | 1461. | 1461. | 12523.13 | |
| | | | | | | | | 44408.58 |
| MAR | | | | | | | | |
| | 4OFPKKWH | 744 | 508232. | 36541.90 | 1461. | 1461. | 0.00 | |
| | EONPKDMHTG | 276 | 325960. | 0.00 | 1461. | 1461. | 12519.40 | |
| | | | | | | | | 49061.30 |
| APR | | | | | | | | |
| | 4OFPKKWH | 720 | 471791. | 33921.80 | 1451. | 1451. | 0.00 | |
| | EONPKDMHTG | 252 | 296752. | 0.00 | 1451. | 1451. | 12431.73 | |
| | | | | | | | | 46353.53 |
| MAY | | | | | | | | |
| | 4OFPKKWH | 744 | 567732. | 40819.94 | 1896. | 1896. | 0.00 | |
| | EONPKDMHTG | 252 | 336181. | 0.00 | 1896. | 1896. | 16244.95 | |
| | | | | | | | | 57064.89 |
| JUN | | | | | | | | |
| | 4OFPKKWH | 456 | 286522. | 20600.94 | 1087. | 1087. | 0.00 | |
| | EONPKDMCL | 264 | 409245. | 0.00 | 1959. | 1959. | 18555.89 | |
| | EONPKKWH | 264 | 409245. | 32780.50 | 1959. | 1959. | 0.00 | |
| | | | | | | | | 71937.33 |
| JUL | | | | | | | | |
| | 4OFPKKWH | 504 | 325145. | 23377.89 | 1072. | 1072. | 0.00 | |
| | EONPKDMCL | 240 | 377259. | 0.00 | 1959. | 1959. | 18549.63 | |
| | EONPKKWH | 240 | 377259. | 30218.49 | 1959. | 1959. | 0.00 | |
| | | | | | | | | 72146.01 |
| AUG | | | | | | | | |
| | 4OFPKKWH | 468 | 297670. | 21402.45 | 1095. | 1095. | 0.00 | |
| | EONPKDMCL | 276 | 433414. | 0.00 | 1960. | 1960. | 18565.50 | |
| | EONPKKWH | 276 | 433414. | 34716.47 | 1960. | 1960. | 0.00 | |
| | | | | | | | | 74684.42 |
| SEP | | | | | | | | |
| | 4OFPKKWH | 468 | 281089. | 20210.29 | 1064. | 1064. | 0.00 | |
| | EONPKDMCL | 252 | 377386. | 0.00 | 1903. | 1903. | 18022.92 | |
| | EONPKKWH | 252 | 377386. | 30228.59 | 1903. | 1903. | 0.00 | |
| | | | | | | | | 68461.80 |
| OCT | | | | | | | | |
| | 4OFPKKWH | 744 | 538915. | 38747.98 | 1809. | 1809. | 0.00 | |
| | EONPKDMHTG | 240 | 309509. | 0.00 | 1809. | 1809. | 15506.68 | |
| | | | | | | | | 54254.66 |
| NOV | | | | | | | | |
| | 4OFPKKWH | 720 | 465642. | 33479.64 | 1460. | 1460. | 0.00 | |
| | EONPKDMHTG | 240 | 283059. | 0.00 | 1460. | 1460. | 12515.08 | |
| | | | | | | | | 45994.72 |

ENTECH ENGINEERING    EZDOE - ELITE SOFTWARE DEVELOPMENT INC    DOE-2.1D    7/ 2/1996    16:24:42 EDL RUN 1
READING, PA 19603    4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOACO - SIM MCA H20 ONLY W/OA SCHD1
REPORT- ES-D SUMMARY OF FUEL AND UTILITY USE AND COSTS

| MONTH | ELECTRIC UNIT= 3413.00 | FUEL-OIL UNIT= 138690.00 |
|---|---|---|
| JAN | | |
| ENERGY CONSUMPTION (UNIT/MO) | 492626. | 9890. |
| PEAK DEMAND (UNIT/HR) | 1461. | 37. |
| TOTAL COST ($) | 47942.91 | 5835.19 |
| FEB | | |
| ENERGY CONSUMPTION (UNIT/MO) | 443469. | 7948. |
| PEAK DEMAND (UNIT/HR) | 1461. | 40. |
| TOTAL COST ($) | 44408.58 | 4689.36 |
| MAR | | |
| ENERGY CONSUMPTION (UNIT/MO) | 508232. | 5637. |
| PEAK DEMAND (UNIT/HR) | 1461. | 24. |
| TOTAL COST ($) | 49061.30 | 3325.66 |
| APR | | |
| ENERGY CONSUMPTION (UNIT/MO) | 471791. | 1790. |
| PEAK DEMAND (UNIT/HR) | 1451. | 19. |
| TOTAL COST ($) | 46353.53 | 1056.25 |
| MAY | | |
| ENERGY CONSUMPTION (UNIT/MO) | 567732. | 223. |
| PEAK DEMAND (UNIT/HR) | 1896. | 4. |
| TOTAL COST ($) | 57064.89 | 131.38 |
| JUN | | |
| ENERGY CONSUMPTION (UNIT/MO) | 695767. | 0. |
| PEAK DEMAND (UNIT/HR) | 1959. | 0. |
| TOTAL COST ($) | 71937.33 | 0.00 |
| JUL | | |
| ENERGY CONSUMPTION (UNIT/MO) | 702404. | 0. |
| PEAK DEMAND (UNIT/HR) | 1959. | 0. |
| TOTAL COST ($) | 72146.01 | 0.00 |
| AUG | | |
| ENERGY CONSUMPTION (UNIT/MO) | 731084. | 0. |
| PEAK DEMAND (UNIT/HR) | 1960. | 0. |
| TOTAL COST ($) | 74684.42 | 0.00 |
| SEP | | |
| ENERGY CONSUMPTION (UNIT/MO) | 658474. | 0. |
| PEAK DEMAND (UNIT/HR) | 1903. | 0. |
| TOTAL COST ($) | 68461.80 | 0.00 |
| OCT | | |
| ENERGY CONSUMPTION (UNIT/MO) | 538915. | 364. |
| PEAK DEMAND (UNIT/HR) | 1809. | 10. |
| TOTAL COST ($) | 54254.66 | 214.71 |
| NOV | | |
| ENERGY CONSUMPTION (UNIT/MO) | 465642. | 3862. |
| PEAK DEMAND (UNIT/HR) | 1460. | 23. |
| TOTAL COST ($) | 45994.72 | 2278.46 |
| DEC | | |
| ENERGY CONSUMPTION (UNIT/MO) | 491445. | 8658. |
| PEAK DEMAND (UNIT/HR) | 1461. | 28. |
| TOTAL COST ($) | 47858.02 | 5108.19 |
| TOTAL | | |
| ENERGY CONSUMPTION (UNIT/YR) | 6767581. | 38372. |
| PEAK DEMAND (UNIT/HR) | 1960. | 40. |
| TOTAL COST ($) | 680168.25 | 22639.20 |

REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

-----CONTINUED-----

| MONTH | CHARGE-ASSIGNMENT (U-NAME) | LENGTH (HR/MO) | CONSUMPTION BY C-A (KWH) | ENERGY CHARGE ($) | MEASURED DEMAND (KW) | BILLING DEMAND (KW) | DEMAND CHARGE ($) | TOTAL CHARGES ($) |
|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | |
| | 4OFPKKWH | 744 | 491445. | 35334.89 | 1461. | 1461. | 0.00 | |
| | EONPKDMHTG | 252 | 298950. | 0.00 | 1461. | 1461. | 12523.13 | |
| | | | | | | | | 47858.02 |
| TOTAL | | | 6767581. | 499687.00 | | | 180481.17 | 680168.25 |

ECO-9

ENTECH ENGINEERING  EZDOE - ELITE SOFTWARE DEVELOPMENT INC  DOE-2.1D 6/27/1996 16:27:41 SDL RUN 1
READING, PA 19603  4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
RS_1 = HOURLY-REPORT  PAGE 1- 1

MCA System Reset
On-Peak

| MMDDHH | 1SMCAHUS ZR SUPPLY ELECTRIC KW | 2SPERFC SUPPLY ELECTRIC KW | 3SPERFC SUPPLY ELECTRIC KW | 4SPERFC SUPPLY ELECTRIC KW |
|---|---|---|---|---|
| | ----(49) | ----(49) | ----(49) | ----(49) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 7576.734 | 383.846 | 383.846 | 450.173 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 6855.140 | 347.290 | 347.290 | 407.299 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 8298.327 | 420.403 | 420.403 | 493.046 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 7576.734 | 383.846 | 383.846 | 450.173 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 7576.734 | 383.846 | 383.846 | 450.173 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 7937.531 | 402.125 | 402.125 | 471.610 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 7215.937 | 365.568 | 365.568 | 428.736 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |

| | 1SMCAHUS ZR SUPPLY ELECTRIC KW | 2SPERFC SUPPLY ELECTRIC KW | 3SPERFC SUPPLY ELECTRIC KW | 4SPERFC SUPPLY ELECTRIC KW |
|---|---|---|---|---|
| | ----(49) | ----(49) | ----(49) | ----(49) |
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 8298.327 | 420.403 | 420.403 | 493.046 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 7576.734 | 383.846 | 383.846 | 450.173 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 7215.937 | 365.568 | 365.568 | 428.736 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 7215.937 | 365.568 | 365.568 | 428.736 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 7576.734 | 383.846 | 383.846 | 450.173 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |
| YEARLY SUMMARY | | | | |
| MN | 30.066 | 1.523 | 1.523 | 1.786 |
| MX | 30.066 | 1.523 | 1.523 | 1.786 |
| SM | 90920.805 | 4606.157 | 4606.157 | 5402.074 |
| AV | 30.066 | 1.523 | 1.523 | 1.786 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/27/1996 16:27:41 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
RS_2 = HOURLY-REPORT



| MMDDHH | SSZF2MID | SSFZ3MID | SSZF4MID | OSMCAHUS ZR |
|---|---|---|---|---|
| | SUPPLY ELECTRIC KW | SUPPLY ELECTRIC KW | SUPPLY ELECTRIC KW | SUPPLY ELECTRIC KW |
| | ----(49) | ----(49) | ----(49) | ----(49) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 6025.824 | 7371.756 | 7426.086 | 4425.524 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 5451.936 | 6669.684 | 6718.840 | 4004.046 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 6599.711 | 8073.829 | 8133.333 | 4847.002 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 6025.824 | 7371.756 | 7426.086 | 4425.524 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 6025.824 | 7371.756 | 7426.086 | 4425.524 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 6312.768 | 7722.792 | 7779.709 | 4636.263 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 5738.880 | 7020.720 | 7072.463 | 4214.785 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |

| | SSZF2MID SUPPLY ELECTRIC KW ----(49) | SSFZ3MID SUPPLY ELECTRIC KW ----(49) | SSZF4MID SUPPLY ELECTRIC KW ----(49) | OSMCAHUS ZR SUPPLY ELECTRIC KW ----(49) |
|---|---|---|---|---|
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 6599.711 | 8073.829 | 8133.333 | 4847.002 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 6025.824 | 7371.756 | 7426.086 | 4425.524 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 5738.880 | 7020.720 | 7072.463 | 4214.785 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 5738.880 | 7020.720 | 7072.463 | 4214.785 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 6025.824 | 7371.756 | 7426.086 | 4425.524 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |
| YEARLY SUMMARY | | | | |
| MN | 23.912 | 29.253 | 29.469 | 17.562 |
| MX | 23.912 | 29.253 | 29.469 | 17.562 |
| SM | 72309.883 | 88461.070 | 89113.039 | 53106.289 |
| AV | 23.912 | 29.253 | 29.469 | 17.562 |

| MMDDHH | 1EXTPER THERMOST SETPOINT F ----( 7) | 1EXTPER ZONE TEMP F ----( 6) | 1INTPER THERMOST SETPOINT F ----( 7) | 1INTPER ZONE TEMP F ----( 6) |
|---|---|---|---|---|
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 71.5 | 73.5 | 71.5 | 73.4 |
| MX | 75.5 | 75.8 | 75.5 | 76.1 |
| SM | 19022.0 | 18843.1 | 19018.0 | 18842.1 |
| AV | 75.5 | 74.8 | 75.5 | 74.8 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 75.5 | 73.5 | 71.5 | 73.2 |
| MX | 75.5 | 75.9 | 75.5 | 76.4 |
| SM | 17214.0 | 17088.2 | 17206.0 | 17084.3 |
| AV | 75.5 | 74.9 | 75.5 | 74.9 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 75.5 | 74.0 | 75.5 | 74.1 |
| MX | 75.5 | 79.8 | 75.5 | 79.6 |
| SM | 20838.0 | 20815.9 | 20838.0 | 20835.3 |
| AV | 75.5 | 75.4 | 75.5 | 75.5 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 75.5 | 74.2 | 75.5 | 74.3 |
| MX | 75.5 | 88.3 | 75.5 | 87.9 |
| SM | 19026.0 | 19448.4 | 19026.0 | 19467.6 |
| AV | 75.5 | 77.2 | 75.5 | 77.3 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 75.5 | 74.8 | 75.5 | 75.2 |
| MX | 75.5 | 95.9 | 75.5 | 95.3 |
| SM | 19026.0 | 19697.4 | 19026.0 | 19775.9 |
| AV | 75.5 | 78.2 | 75.5 | 78.5 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 75.5 | 75.5 | 75.5 | 75.7 |
| MX | 75.5 | 77.1 | 75.5 | 77.7 |
| SM | 19932.0 | 20168.5 | 19932.0 | 20280.0 |
| AV | 75.5 | 76.4 | 75.5 | 76.8 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 75.5 | 75.6 | 75.5 | 75.8 |
| MX | 75.5 | 77.1 | 75.5 | 77.6 |
| SM | 18120.0 | 18354.5 | 18120.0 | 18442.9 |
| AV | 75.5 | 76.5 | 75.5 | 76.8 |

| | 1EXTPER | 1EXTPER | 1INTPER | 1INTPER |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 75.5 | 75.3 | 75.5 | 75.6 |
| MX | 75.5 | 77.1 | 75.5 | 77.5 |
| SM | 20838.0 | 21107.7 | 20838.0 | 21169.1 |
| AV | 75.5 | 76.5 | 75.5 | 76.7 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 75.5 | 75.1 | 75.5 | 75.1 |
| MX | 75.5 | 77.0 | 75.5 | 77.6 |
| SM | 19026.0 | 19208.4 | 19026.0 | 19241.1 |
| AV | 75.5 | 76.2 | 75.5 | 76.4 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 75.5 | 74.5 | 75.5 | 74.2 |
| MX | 75.5 | 82.6 | 75.5 | 81.9 |
| SM | 18120.0 | 18330.3 | 18120.0 | 18335.0 |
| AV | 75.5 | 76.4 | 75.5 | 76.4 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 75.5 | 74.2 | 75.5 | 74.2 |
| MX | 75.5 | 88.5 | 75.5 | 88.7 |
| SM | 18120.0 | 18257.2 | 18120.0 | 18289.7 |
| AV | 75.5 | 76.1 | 75.5 | 76.2 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 75.5 | 73.8 | 75.5 | 73.6 |
| MX | 75.5 | 77.7 | 75.5 | 77.5 |
| SM | 19026.0 | 18889.4 | 19026.0 | 18914.2 |
| AV | 75.5 | 75.0 | 75.5 | 75.1 |
| YEARLY SUMMARY | | | | |
| MN | 71.5 | 73.5 | 71.5 | 73.2 |
| MX | 75.5 | 95.9 | 75.5 | 95.3 |
| SM | 228308.0 | 230209.0 | 228296.0 | 230677.3 |
| AV | 75.5 | 76.1 | 75.5 | 76.3 |

| MMDDHH | 2EXTPER THERMOST SETPOINT F ----( 7) | 2EXTPER ZONE TEMP F ----( 6) | 2INTPER THERMOST SETPOINT F ----( 7) | 2INTPER ZONE TEMP F ----( 6) |
|---|---|---|---|---|
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 71.5 | 72.3 | 71.5 | 72.3 |
| MX | 75.5 | 78.8 | 75.5 | 79.6 |
| SM | 18514.0 | 18715.6 | 18550.0 | 18762.4 |
| AV | 73.5 | 74.3 | 73.6 | 74.5 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 71.5 | 72.9 | 71.5 | 72.9 |
| MX | 75.5 | 79.1 | 75.5 | 79.8 |
| SM | 16898.0 | 17067.2 | 16914.0 | 17123.0 |
| AV | 74.1 | 74.9 | 74.2 | 75.1 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 71.5 | 72.8 | 71.5 | 72.8 |
| MX | 75.5 | 85.3 | 75.5 | 86.2 |
| SM | 20594.0 | 21122.0 | 20622.0 | 21202.6 |
| AV | 74.6 | 76.5 | 74.7 | 76.8 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 71.5 | 73.1 | 71.5 | 73.1 |
| MX | 75.5 | 100.4 | 75.5 | 101.6 |
| SM | 18978.0 | 21348.4 | 18978.0 | 21513.0 |
| AV | 75.3 | 84.7 | 75.3 | 85.4 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 71.5 | 71.3 | 71.5 | 71.4 |
| MX | 75.5 | 104.4 | 75.5 | 105.1 |
| SM | 18998.0 | 20768.4 | 19002.0 | 20857.1 |
| AV | 75.4 | 82.4 | 75.4 | 82.8 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 75.5 | 74.5 | 75.5 | 74.4 |
| MX | 75.5 | 76.9 | 75.5 | 76.9 |
| SM | 19932.0 | 19970.9 | 19932.0 | 19964.5 |
| AV | 75.5 | 75.6 | 75.5 | 75.6 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 75.5 | 74.5 | 75.5 | 74.5 |
| MX | 75.5 | 76.8 | 75.5 | 76.7 |
| SM | 18120.0 | 18184.2 | 18120.0 | 18177.9 |
| AV | 75.5 | 75.8 | 75.5 | 75.7 |

| | 2EXTPER | 2EXTPER | 2INTPER | 2INTPER |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 75.5 | 74.4 | 75.5 | 74.4 |
| MX | 75.5 | 76.9 | 75.5 | 76.9 |
| SM | 20838.0 | 20909.4 | 20838.0 | 20910.2 |
| AV | 75.5 | 75.8 | 75.5 | 75.8 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 71.5 | 73.3 | 75.5 | 73.6 |
| MX | 75.5 | 76.3 | 75.5 | 76.4 |
| SM | 19022.0 | 18965.5 | 19026.0 | 18977.9 |
| AV | 75.5 | 75.3 | 75.5 | 75.3 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 71.5 | 70.4 | 71.5 | 71.3 |
| MX | 75.5 | 92.5 | 75.5 | 94.6 |
| SM | 18096.0 | 18950.6 | 18104.0 | 19103.8 |
| AV | 75.4 | 79.0 | 75.4 | 79.6 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 71.5 | 73.0 | 71.5 | 73.0 |
| MX | 75.5 | 94.2 | 75.5 | 95.0 |
| SM | 17964.0 | 19000.7 | 17984.0 | 19138.4 |
| AV | 74.8 | 79.2 | 74.9 | 79.7 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 71.5 | 72.7 | 71.5 | 72.8 |
| MX | 75.5 | 82.4 | 75.5 | 83.7 |
| SM | 18522.0 | 18774.5 | 18566.0 | 18819.8 |
| AV | 73.5 | 74.5 | 73.7 | 74.7 |
| YEARLY SUMMARY | | | | |
| MN | 71.5 | 70.4 | 71.5 | 71.3 |
| MX | 75.5 | 104.4 | 75.5 | 105.1 |
| SM | 226476.0 | 233777.4 | 226636.0 | 234550.7 |
| AV | 74.9 | 77.3 | 74.9 | 77.6 |

| MMDDHH | 3EXTPER | 3EXTPER | 3INTPER | 3INTPER |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 71.5 | 72.3 | 71.5 | 72.3 |
| MX | 75.5 | 78.8 | 75.5 | 79.6 |
| SM | 18514.0 | 18715.6 | 18550.0 | 18762.4 |
| AV | 73.5 | 74.3 | 73.6 | 74.5 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 71.5 | 72.9 | 71.5 | 72.9 |
| MX | 75.5 | 79.1 | 75.5 | 79.8 |
| SM | 16898.0 | 17067.2 | 16914.0 | 17123.0 |
| AV | 74.1 | 74.9 | 74.2 | 75.1 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 71.5 | 72.8 | 71.5 | 72.8 |
| MX | 75.5 | 85.3 | 75.5 | 86.2 |
| SM | 20594.0 | 21121.9 | 20622.0 | 21202.6 |
| AV | 74.6 | 76.5 | 74.7 | 76.8 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 71.5 | 73.1 | 71.5 | 73.1 |
| MX | 75.5 | 100.4 | 75.5 | 101.6 |
| SM | 18978.0 | 21348.4 | 18978.0 | 21513.0 |
| AV | 75.3 | 84.7 | 75.3 | 85.4 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 71.5 | 71.3 | 71.5 | 71.4 |
| MX | 75.5 | 104.4 | 75.5 | 105.1 |
| SM | 18998.0 | 20768.4 | 19002.0 | 20857.1 |
| AV | 75.4 | 82.4 | 75.4 | 82.8 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 75.5 | 74.5 | 75.5 | 74.4 |
| MX | 75.5 | 76.9 | 75.5 | 76.9 |
| SM | 19932.0 | 19970.9 | 19932.0 | 19964.5 |
| AV | 75.5 | 75.6 | 75.5 | 75.6 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 75.5 | 74.5 | 75.5 | 74.5 |
| MX | 75.5 | 76.8 | 75.5 | 76.7 |
| SM | 18120.0 | 18184.3 | 18120.0 | 18177.9 |
| AV | 75.5 | 75.8 | 75.5 | 75.7 |

| | 3EXTPER | 3EXTPER | 3INTPER | 3INTPER |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 75.5 | 74.4 | 75.5 | 74.4 |
| MX | 75.5 | 76.9 | 75.5 | 76.9 |
| SM | 20838.0 | 20909.4 | 20838.0 | 20910.2 |
| AV | 75.5 | 75.8 | 75.5 | 75.8 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 71.5 | 73.3 | 75.5 | 73.6 |
| MX | 75.5 | 76.3 | 75.5 | 76.4 |
| SM | 19022.0 | 18965.5 | 19026.0 | 18977.9 |
| AV | 75.5 | 75.3 | 75.5 | 75.3 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 71.5 | 70.4 | 71.5 | 71.3 |
| MX | 75.5 | 92.5 | 75.5 | 94.6 |
| SM | 18096.0 | 18950.5 | 18104.0 | 19103.8 |
| AV | 75.4 | 79.0 | 75.4 | 79.6 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 71.5 | 73.0 | 71.5 | 73.0 |
| MX | 75.5 | 94.2 | 75.5 | 95.0 |
| SM | 17964.0 | 19000.6 | 17984.0 | 19138.4 |
| AV | 74.8 | 79.2 | 74.9 | 79.7 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 71.5 | 72.7 | 71.5 | 72.8 |
| MX | 75.5 | 82.4 | 75.5 | 83.7 |
| SM | 18522.0 | 18774.4 | 18566.0 | 18819.8 |
| AV | 73.5 | 74.5 | 73.7 | 74.7 |
| YEARLY SUMMARY | | | | |
| MN | 71.5 | 70.4 | 71.5 | 71.3 |
| MX | 75.5 | 104.4 | 75.5 | 105.1 |
| SM | 226476.0 | 233777.1 | 226636.0 | 234550.7 |
| AV | 74.9 | 77.3 | 74.9 | 77.6 |

| MMDDHH | 4EXTPER THERMOST SETPOINT F ----( 7) | 4EXTPER ZONE TEMP F ----( 6) | 4INTPER THERMOST SETPOINT F ----( 7) | 4INTPER ZONE TEMP F ----( 6) |
|---|---|---|---|---|
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 71.5 | 72.2 | 71.5 | 72.2 |
| MX | 75.5 | 76.5 | 75.5 | 77.5 |
| SM | 18178.0 | 18495.3 | 18218.0 | 18515.3 |
| AV | 72.1 | 73.4 | 72.3 | 73.5 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 71.5 | 72.7 | 71.5 | 72.7 |
| MX | 75.5 | 76.5 | 75.5 | 77.2 |
| SM | 16582.0 | 16803.2 | 16618.0 | 16832.4 |
| AV | 72.7 | 73.7 | 72.9 | 73.8 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 71.5 | 72.7 | 71.5 | 72.7 |
| MX | 75.5 | 82.8 | 75.5 | 83.3 |
| SM | 20358.0 | 20705.7 | 20378.0 | 20743.8 |
| AV | 73.8 | 75.0 | 73.8 | 75.2 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 71.5 | 73.0 | 71.5 | 73.0 |
| MX | 75.5 | 94.4 | 75.5 | 95.2 |
| SM | 18910.0 | 20293.5 | 18910.0 | 20371.9 |
| AV | 75.0 | 80.5 | 75.0 | 80.8 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 71.5 | 69.1 | 71.5 | 69.3 |
| MX | 75.5 | 101.1 | 75.5 | 101.5 |
| SM | 18966.0 | 20157.6 | 18966.0 | 20198.7 |
| AV | 75.3 | 80.0 | 75.3 | 80.2 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 75.5 | 74.1 | 75.5 | 74.0 |
| MX | 75.5 | 77.0 | 75.5 | 76.9 |
| SM | 19932.0 | 19938.4 | 19932.0 | 19937.5 |
| AV | 75.5 | 75.5 | 75.5 | 75.5 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 75.5 | 74.3 | 75.5 | 74.3 |
| MX | 75.5 | 76.8 | 75.5 | 76.7 |
| SM | 18120.0 | 18164.2 | 18120.0 | 18163.3 |
| AV | 75.5 | 75.7 | 75.5 | 75.7 |

| | 4EXTPER | 4EXTPER | 4INTPER | 4INTPER |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| **MONTHLY SUMMARY (AUG)** | | | | |
| MN | 75.5 | 73.8 | 75.5 | 73.8 |
| MX | 75.5 | 76.9 | 75.5 | 76.9 |
| SM | 20838.0 | 20880.3 | 20838.0 | 20886.4 |
| AV | 75.5 | 75.7 | 75.5 | 75.7 |
| **MONTHLY SUMMARY (SEP)** | | | | |
| MN | 71.5 | 71.1 | 71.5 | 71.5 |
| MX | 75.5 | 76.3 | 75.5 | 76.3 |
| SM | 19010.0 | 18901.1 | 19014.0 | 18917.6 |
| AV | 75.4 | 75.0 | 75.5 | 75.1 |
| **MONTHLY SUMMARY (OCT)** | | | | |
| MN | 71.5 | 65.1 | 71.5 | 66.0 |
| MX | 75.5 | 86.0 | 75.5 | 87.3 |
| SM | 17988.0 | 18348.1 | 18020.0 | 18452.7 |
| AV | 74.9 | 76.5 | 75.1 | 76.9 |
| **MONTHLY SUMMARY (NOV)** | | | | |
| MN | 71.5 | 72.9 | 71.5 | 72.9 |
| MX | 75.5 | 88.6 | 75.5 | 89.1 |
| SM | 17768.0 | 18376.6 | 17820.0 | 18429.6 |
| AV | 74.0 | 76.6 | 74.3 | 76.8 |
| **MONTHLY SUMMARY (DEC)** | | | | |
| MN | 71.5 | 72.6 | 71.5 | 72.7 |
| MX | 75.5 | 80.1 | 75.5 | 80.9 |
| SM | 18210.0 | 18560.2 | 18242.0 | 18580.1 |
| AV | 72.3 | 73.7 | 72.4 | 73.7 |
| **YEARLY SUMMARY** | | | | |
| MN | 71.5 | 65.1 | 71.5 | 66.0 |
| MX | 75.5 | 101.1 | 75.5 | 101.5 |
| SM | 224860.0 | 229624.2 | 225076.0 | 230029.4 |
| AV | 74.4 | 75.9 | 74.4 | 76.1 |

| MMDDHH | 2MIDL THERMOST SETPOINT F ----( 7) | 2MIDL ZONE TEMP F ----( 6) | 3MIDL THERMOST SETPOINT F ----( 7) | 3MIDL ZONE TEMP F ----( 6) |
|---|---|---|---|---|
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 75.5 | 74.5 | 75.5 | 74.5 |
| MX | 75.5 | 76.4 | 75.5 | 76.4 |
| SM | 19026.0 | 19040.8 | 19026.0 | 19051.4 |
| AV | 75.5 | 75.6 | 75.5 | 75.6 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 75.5 | 74.4 | 75.5 | 74.5 |
| MX | 75.5 | 76.5 | 75.5 | 76.5 |
| SM | 17214.0 | 17249.8 | 17214.0 | 17258.2 |
| AV | 75.5 | 75.7 | 75.5 | 75.7 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 75.5 | 75.0 | 75.5 | 75.0 |
| MX | 75.5 | 80.5 | 75.5 | 80.6 |
| SM | 20838.0 | 20979.4 | 20838.0 | 20987.2 |
| AV | 75.5 | 76.0 | 75.5 | 76.0 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 75.5 | 75.0 | 75.5 | 75.0 |
| MX | 75.5 | 88.7 | 75.5 | 88.7 |
| SM | 19026.0 | 19587.6 | 19026.0 | 19593.7 |
| AV | 75.5 | 77.7 | 75.5 | 77.8 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 75.5 | 75.3 | 75.5 | 75.4 |
| MX | 75.5 | 96.2 | 75.5 | 96.2 |
| SM | 19026.0 | 19801.2 | 19026.0 | 19804.6 |
| AV | 75.5 | 78.6 | 75.5 | 78.6 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 75.5 | 75.6 | 75.5 | 75.6 |
| MX | 75.5 | 77.1 | 75.5 | 77.1 |
| SM | 19932.0 | 20210.1 | 19932.0 | 20211.3 |
| AV | 75.5 | 76.6 | 75.5 | 76.6 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 75.5 | 75.7 | 75.5 | 75.7 |
| MX | 75.5 | 77.1 | 75.5 | 77.1 |
| SM | 18120.0 | 18388.3 | 18120.0 | 18389.0 |
| AV | 75.5 | 76.6 | 75.5 | 76.6 |

| | 2MIDL | 2MIDL | 3MIDL | 3MIDL |
|---|---|---|---|---|
| | THERMOST SETPOINT F | ZONE TEMP F | THERMOST SETPOINT F | ZONE TEMP F |
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 75.5 | 75.5 | 75.5 | 75.6 |
| MX | 75.5 | 77.2 | 75.5 | 77.2 |
| SM | 20838.0 | 21141.3 | 20838.0 | 21142.3 |
| AV | 75.5 | 76.6 | 75.5 | 76.6 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 75.5 | 75.4 | 75.5 | 75.4 |
| MX | 75.5 | 77.1 | 75.5 | 77.1 |
| SM | 19026.0 | 19254.4 | 19026.0 | 19256.8 |
| AV | 75.5 | 76.4 | 75.5 | 76.4 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 75.5 | 75.1 | 75.5 | 75.2 |
| MX | 75.5 | 83.0 | 75.5 | 83.0 |
| SM | 18120.0 | 18439.8 | 18120.0 | 18445.7 |
| AV | 75.5 | 76.8 | 75.5 | 76.9 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 75.5 | 74.9 | 75.5 | 74.9 |
| MX | 75.5 | 90.6 | 75.5 | 90.7 |
| SM | 18120.0 | 18446.1 | 18120.0 | 18455.2 |
| AV | 75.5 | 76.9 | 75.5 | 76.9 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 75.5 | 74.6 | 75.5 | 74.7 |
| MX | 75.5 | 78.6 | 75.5 | 78.7 |
| SM | 19026.0 | 19079.9 | 19026.0 | 19089.6 |
| AV | 75.5 | 75.7 | 75.5 | 75.8 |
| YEARLY SUMMARY | | | | |
| MN | 75.5 | 74.4 | 75.5 | 74.5 |
| MX | 75.5 | 96.2 | 75.5 | 96.2 |
| SM | 228312.0 | 231618.8 | 228312.0 | 231685.0 |
| AV | 75.5 | 76.6 | 75.5 | 76.6 |

| MMDDHH | 4MIDL THERMOST SETPOINT F | 4MIDL ZONE TEMP F | 0INTEXTPER THERMOST SETPOINT F | 0INTEXTPER ZONE TEMP F |
|---|---|---|---|---|
| | ----( 7) | ----( 6) | ----( 7) | ----( 6) |
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 71.5 | 73.1 | 71.5 | 73.2 |
| MX | 75.5 | 75.2 | 75.5 | 75.1 |
| SM | 18786.0 | 18645.6 | 18802.0 | 18651.6 |
| AV | 74.5 | 74.0 | 74.6 | 74.0 |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 71.5 | 73.2 | 71.5 | 73.3 |
| MX | 75.5 | 75.4 | 75.5 | 75.3 |
| SM | 17102.0 | 16920.4 | 17106.0 | 16921.6 |
| AV | 75.0 | 74.2 | 75.0 | 74.2 |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 71.5 | 73.4 | 71.5 | 73.4 |
| MX | 75.5 | 78.6 | 75.5 | 79.0 |
| SM | 20822.0 | 20633.2 | 20814.0 | 20641.6 |
| AV | 75.4 | 74.8 | 75.4 | 74.8 |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 75.5 | 73.6 | 75.5 | 73.6 |
| MX | 75.5 | 87.9 | 75.5 | 89.2 |
| SM | 19026.0 | 19294.0 | 19026.0 | 19329.1 |
| AV | 75.5 | 76.6 | 75.5 | 76.7 |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 75.5 | 74.2 | 75.5 | 74.3 |
| MX | 75.5 | 95.4 | 75.5 | 97.7 |
| SM | 19026.0 | 19562.9 | 19026.0 | 19652.2 |
| AV | 75.5 | 77.6 | 75.5 | 78.0 |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 75.5 | 75.0 | 75.5 | 75.3 |
| MX | 75.5 | 77.1 | 75.5 | 77.1 |
| SM | 19932.0 | 20107.2 | 19932.0 | 20134.5 |
| AV | 75.5 | 76.2 | 75.5 | 76.3 |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 75.5 | 75.2 | 75.5 | 75.5 |
| MX | 75.5 | 77.0 | 75.5 | 77.1 |
| SM | 18120.0 | 18312.2 | 18120.0 | 18336.9 |
| AV | 75.5 | 76.3 | 75.5 | 76.4 |

| | 4MIDL THERMOST SETPOINT F ----( 7) | 4MIDL ZONE TEMP F ----( 6) | OINTEXTP ER THERMOST SETPOINT F ----( 7) | OINTEXTP ER ZONE TEMP F ----( 6) |
|---|---|---|---|---|
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 75.5 | 74.9 | 75.5 | 75.2 |
| MX | 75.5 | 77.0 | 75.5 | 77.1 |
| SM | 20838.0 | 21047.8 | 20838.0 | 21089.5 |
| AV | 75.5 | 76.3 | 75.5 | 76.4 |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 75.5 | 74.5 | 75.5 | 74.9 |
| MX | 75.5 | 76.8 | 75.5 | 76.9 |
| SM | 19026.0 | 19108.1 | 19026.0 | 19166.4 |
| AV | 75.5 | 75.8 | 75.5 | 76.1 |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 71.5 | 71.8 | 75.5 | 74.2 |
| MX | 75.5 | 82.1 | 75.5 | 83.3 |
| SM | 18112.0 | 18176.5 | 18120.0 | 18255.3 |
| AV | 75.5 | 75.7 | 75.5 | 76.1 |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 71.5 | 73.5 | 75.5 | 73.5 |
| MX | 75.5 | 88.0 | 75.5 | 89.1 |
| SM | 18116.0 | 18094.7 | 18120.0 | 18126.0 |
| AV | 75.5 | 75.4 | 75.5 | 75.5 |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 71.5 | 73.3 | 71.5 | 73.3 |
| MX | 75.5 | 77.0 | 75.5 | 77.2 |
| SM | 18886.0 | 18699.4 | 18914.0 | 18709.7 |
| AV | 74.9 | 74.2 | 75.1 | 74.2 |
| YEARLY SUMMARY | | | | |
| MN | 71.5 | 71.8 | 71.5 | 73.2 |
| MX | 75.5 | 95.4 | 75.5 | 97.7 |
| SM | 227792.0 | 228602.1 | 227844.0 | 229014.1 |
| AV | 75.3 | 75.6 | 75.3 | 75.7 |

| EQUIPMENT | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL | SIZE (MBTU/H) | NUMBER INSTD | NUMBER AVAIL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 4.648 | 1 | 1 | | | | | | | | | | | | | | | |
| HERM-CENT-CHLR | 7.800 | 1 | 1 | | | | | | | | | | | | | | | |
| COOLING-TWR | 2.379 | 4 | 4 | | | | | | | | | | | | | | | |

ENTECH ENGINEERING    EZDOE - ELITE SOFTWARE DEVELOPMENT INC    DOE-2.1D  6/27/1996  16:27:41  PDL RUN 1
READING, PA 19603    4130.05 FT. MONMOUTH - MYER CENTER, NJ  FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- PS-C EQUIPMENT PART LOAD OPERATION    WEATHER FILE- NEWARK, NJ

| EQUIPMENT | HOURS AT PERCENT PART LOAD RATIO 0 -- 10 | -- 20 | -- 30 | -- 40 | -- 50 | -- 60 | -- 70 | -- 80 | -- 90 | -- 100 | - 110+ | TOTAL HOURS | ANNUAL LOAD (MBTU) | FALSE LOAD (MBTU) | ELEC USED (MBTU) | THERMAL USED (MBTU) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 2736 | 641 | 642 | 475 | 338 | 142 | 64 | 33 | 12 | 4 | 1 | 5088 | 3673.8 | 0.0 | 236.0 | 5321.7 |
| | 2736 | 641 | 642 | 475 | 338 | 142 | 64 | 33 | 12 | 4 | 1 | | | | | |
| HERM-CENT-CHLR | 1064 | 511 | 805 | 487 | 340 | 337 | 117 | 11 | 0 | 0 | 0 | 3672 | 8597.3 | 0.0 | 1960.2 | 0.0 |
| | 1064 | 511 | 805 | 487 | 340 | 337 | 117 | 11 | 0 | 0 | 0 | | | | | |
| COOLING-TWR | 1229 | 566 | 601 | 328 | 161 | 118 | 149 | 126 | 106 | 100 | 188 | 3672 | 10557.6 | 0.0 | 814.0 | 0.0 |
| | 1229 | 566 | 601 | 328 | 161 | 118 | 149 | 126 | 106 | 100 | 188 | | | | | |

HOT LOOP CIRCULATION PUMP ELECTRICAL USE = 174.8 MBTU
COLD LOOP CIRCULATION PUMP ELECTRICAL USE = 907.9 MBTU

NOTES TO TABLE
1) THE FIRST PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE HOURLY OPERATING CAPACITY

2) THE SECOND PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE TOTAL INSTALLED CAPACITY

| HEATING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HW-BOILER | 3673.8 | 100.0 |
| LOAD SATISFIED | 3673.8 | 100.0 |
| TOTAL LOAD ON PLANT | 3673.8 | |

| COOLING LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| HERM-CENT-CHLR | 8597.3 | 100.0 |
| LOAD SATISFIED | 8597.3 | 100.0 |
| TOTAL LOAD ON PLANT | 8597.3 | |

| ELECTRICAL LOADS | MBTU SUPPLIED | PCT OF TOTAL LOAD |
|---|---|---|
| ELECTRICITY | 23097.8 | 100.0 |
| LOAD SATISFIED | 23097.8 | 100.0 |
| TOTAL LOAD ON PLANT | 23097.5 | |

TOWER ABOVE DESIGN TEMPERATURE OF 85.F   1 HOURS
MAXIMUM TOWER EXIT TEMPERATURE = 85.F

SUMMARY OF LOADS MET

| TYPE OF LOAD | TOTAL LOAD (MBTU) | LOAD SATISFIED (MBTU) | TOTAL OVERLOAD (MBTU) | PEAK OVERLOAD (MBTU) | HOURS OVERLOADED |
|---|---|---|---|---|---|
| HEATING LOADS | 3673.8 | 3673.8 | 0.000 | 0.000 | 0 |
| COOLING LOADS | 8597.3 | 8597.3 | 0.000 | 0.000 | 0 |
| ELECTRICAL LOADS | 23097.5 | 23097.8 | 0.000 | 0.000 | 0 |

REPORT- PS-H EQUIPMENT USE STATISTICS WEATHER FILE- NEWARK, NJ

| E Q U I P M E N T | AVG OPER RATIO | MAX LOAD (MBTU) | MON | DAY | HR | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 0.155 | 4.648 | 2 | 20 | 3 | 4.648 | 5088 | | | | | | | | |
| HERM-CENT-CHLR | 0.300 | 6.956 | 8 | 18 | 15 | 7.800 | 3672 | | | | | | | | |
| COOLING-TWR | 0.302 | 8.375 | 8 | 18 | 15 | 2.379 | 14688 | | | | | | | | |

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|---|---|---|
| CATEGORY OF USE | | |
| SPACE HEAT | 235.96 | 5321.68 |
| SPACE COOL | 2774.24 | 0.00 |
| HVAC AUX | 5307.58 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 10258.56 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 4521.40 | 0.00 |
| TOTAL | 23097.73 | 5321.68 |

TOTAL SITE ENERGY 28419.50 MBTU 86.2 KBTU/SQFT-YR GROSS-AREA 86.2 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 74684.37 MBTU 226.6 KBTU/SQFT-YR GROSS-AREA 226.6 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 1.8
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

| MMDDHH | HERM-CEN T-CHLR LOAD BTU/HR ----( 1) | HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----( 3) | HERM-CEN T-CHLR ENTERING COND TEM F ----(12) | HERM-CEN T-CHLR LEAVING COLD TEM F ----(13) | COOLING-TWR WATER FLOWRATE GAL/MIN ----( 8) | COOLING-TWR RANGE R ----(10) | COOLING-TWR FAN ELEC BTU/HR ----(20) | COOLING-TWR PUMP ELEC BTU/HR ----(21) |
|---|---|---|---|---|---|---|---|---|
| MONTHLY SUMMARY (JAN) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (FEB) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (MAR) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (APR) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (MAY) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 6000451. | 1179016. | 79.9 | 56.0 | 1950.0 | 7.4 | 140410. | 90465. |
| SM | 365947136. | 78225192. | 8926.2 | 7232.2 | 257400.0 | 466.2 | 17391252. | 11941428. |
| AV | 1452171. | 310417. | 35.4 | 28.7 | 1021.4 | 1.9 | 69013. | 47387. |
| MONTHLY SUMMARY (JUN) | | | | | | | | |
| MN | 1015087. | 387913. | 64.5 | 54.1 | 1950.0 | 1.5 | 118667. | 90465. |
| MX | 6886767. | 1408817. | 83.5 | 56.3 | 1950.0 | 8.6 | 140410. | 90465. |
| SM | 1127043840. | 220363632. | 19075.1 | 14612.5 | 514800.0 | 1402.9 | 36755700. | 23882852. |
| AV | 4269106. | 834711. | 72.3 | 55.4 | 1950.0 | 5.3 | 139226. | 90465. |
| MONTHLY SUMMARY (JUL) | | | | | | | | |
| MN | 1311041. | 413325. | 64.5 | 54.2 | 1950.0 | 1.9 | 132391. | 90465. |
| MX | 6717490. | 1356482. | 82.0 | 56.3 | 1950.0 | 8.4 | 140410. | 90465. |
| SM | 1135056768. | 217876976. | 17724.1 | 13325.6 | 468000.0 | 1406.5 | 33679548. | 21711684. |
| AV | 4729403. | 907821. | 73.9 | 55.5 | 1950.0 | 5.9 | 140331. | 90465. |

| | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | HERM-CEN T-CHLR ENTERING COND TEM F | HERM-CEN T-CHLR LEAVING COLD TEM F | COOLING-TWR WATER FLOWRATE GAL/MIN | COOLING-TWR RANGE R | COOLING-TWR FAN ELEC BTU/HR | COOLING-TWR PUMP ELEC BTU/HR |
|---|---|---|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----(12) | ----(13) | ----( 8) | ----(10) | ----(20) | ----(21) |
| MONTHLY SUMMARY (AUG) | | | | | | | | |
| MN | 894222. | 378119. | 64.6 | 54.1 | 1950.0 | 1.4 | 124162. | 90465. |
| MX | 6956289. | 1418906. | 85.3 | 56.3 | 1950.0 | 8.7 | 140410. | 90465. |
| SM | 1282126848. | 249123264. | 20417.3 | 15315.6 | 538200.1 | 1592.3 | 38684532. | 24968436. |
| AV | 4645387. | 902621. | 74.0 | 55.5 | 1950.0 | 5.8 | 140161. | 90465. |
| MONTHLY SUMMARY (SEP) | | | | | | | | |
| MN | 439230. | 207365. | 64.4 | 53.9 | 1950.0 | 0.7 | 109354. | 90465. |
| MX | 5895004. | 1166655. | 81.9 | 56.0 | 1950.0 | 7.3 | 140410. | 90465. |
| SM | 802535552. | 166128400. | 17338.8 | 13845.9 | 491400.0 | 1013.7 | 34057108. | 22797268. |
| AV | 3184665. | 659240. | 68.8 | 54.9 | 1950.0 | 4.0 | 135147. | 90465. |
| MONTHLY SUMMARY (OCT) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 4687710. | 866799. | 70.5 | 55.5 | 1950.0 | 5.8 | 140410. | 90465. |
| SM | 165302800. | 46462144. | 7049.0 | 5867.0 | 210600.0 | 226.0 | 13478706. | 9770260. |
| AV | 688762. | 193592. | 29.4 | 24.4 | 877.5 | 0.9 | 56161. | 40709. |
| MONTHLY SUMMARY (NOV) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MONTHLY SUMMARY (DEC) | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| SM | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| AV | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| YEARLY SUMMARY | | | | | | | | |
| MN | 0. | 0. | 0.0 | 0.0 | 0.0 | 0.0 | 0. | 0. |
| MX | 6956289. | 1418906. | 85.3 | 56.3 | 1950.0 | 8.7 | 140410. | 90465. |
| SM | 4878012928. | 978179584. | 90530.5 | 70198.9 | 2480400.3 | 6107.7 | 174046832. | 115071920. |
| AV | 1613100. | 323472. | 29.9 | 23.2 | 820.2 | 2.0 | 57555. | 38053. |

| MMDDHH | HW-BOILER LOAD BTU/HR ----( 1) | HW-BOILER ELECTRIC USE BTU/HR ----( 3) | HW-BOILER FUEL USE BTU/HR ----( 4) | HW-BOILER CAPACITY RUNNING BTU/HR ----( 7) |
|---|---|---|---|---|
| MONTHLY SUMMARY (JAN) | | | | |
| MN | 15403. | 1356. | 24165. | 4648277. |
| MX | 2978234. | 102262. | 3841311. | 4648277. |
| SM | 147403680. | 10336617. | 218015296. | 1171365760. |
| AV | 584935. | 41018. | 865140. | 4648277. |
| MONTHLY SUMMARY (FEB) | | | | |
| MN | 15403. | 1356. | 24165. | 4648277. |
| MX | 1744793. | 102262. | 2485326. | 4648277. |
| SM | 63301488. | 5492584. | 98924976. | 1059807168. |
| AV | 277638. | 24090. | 433881. | 4648277. |
| MONTHLY SUMMARY (MAR) | | | | |
| MN | 15403. | 1356. | 24165. | 4648277. |
| MX | 1683503. | 102262. | 2416321. | 4648277. |
| SM | 56578544. | 4792177. | 87849896. | 1282924416. |
| AV | 204995. | 17363. | 318297. | 4648277. |
| MONTHLY SUMMARY (APR) | | | | |
| MN | 15403. | 1356. | 24165. | 4648277. |
| MX | 1024598. | 90165. | 1607362. | 4648277. |
| SM | 16198086. | 1425432. | 25411140. | 1171365760. |
| AV | 64278. | 5656. | 100838. | 4648277. |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 180877. | 15917. | 283756. | 4648277. |
| SM | 3847751. | 338602. | 6036252. | 557793216. |
| AV | 15269. | 1344. | 23953. | 2213465. |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |

| | HW-BOILER LOAD BTU/HR ----( 1) | HW-BOILER ELECTRIC USE BTU/HR ----( 3) | HW-BOILER FUEL USE BTU/HR ----( 4) | HW-BOILER CAPACITY RUNNING BTU/HR ----( 7) |
|---|---|---|---|---|
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 0. | 0. | 0. | 0. |
| SM | 0. | 0. | 0. | 0. |
| AV | 0. | 0. | 0. | 0. |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 218615. | 19238. | 342957. | 4648277. |
| SM | 4828828. | 424937. | 7575341. | 613572544. |
| AV | 20120. | 1771. | 31564. | 2556552. |
| MONTHLY SUMMARY (NOV) | | | | |
| MN | 15403. | 1356. | 24165. | 4648277. |
| MX | 1286277. | 102262. | 1965361. | 4648277. |
| SM | 32571738. | 2852791. | 51032784. | 1115586432. |
| AV | 135716. | 11887. | 212637. | 4648277. |
| MONTHLY SUMMARY (DEC) | | | | |
| MN | 15403. | 1356. | 24165. | 4648277. |
| MX | 1900431. | 102262. | 2659863. | 4648277. |
| SM | 106300208. | 8927519. | 164678864. | 1171365760. |
| AV | 421826. | 35427. | 653488. | 4648277. |
| YEARLY SUMMARY | | | | |
| MN | 0. | 0. | 0. | 0. |
| MX | 2978234. | 102262. | 3841311. | 4648277. |
| SM | 431030336. | 34590656. | 659524544. | 8143781376. |
| AV | 142536. | 11439. | 218097. | 2693050. |

REPORT- EV-B COST OF FUELS AND UTILITIES

| ENERGY SOURCE | ENERGY UNIT (BTU) | UNIFORM COST /UNIT ($) | COST ESCLA-ATION RATE | MIN MNTHLY CHARGE ($) | RATE LIMIT /UNIT ($) | FIXED MNTHLY CHARG1 ($) | FIXED MNTHLY CHARG2 ($) | ASSIGN-SCHEDULE (U-NAME) | ASSIGN-CHARGE1 (U-NAME) | ASSIGN-CHARGE2 (U-NAME) |
|---|---|---|---|---|---|---|---|---|---|---|
| ELECTRIC | 3413.00 | 0.0000 | 5.000 | 0.00 | 1000000.000 | 0.00 | 0.00 | YELEC1 | | |
| FUEL-OIL | 138690.00 | 0.5900 | 5.000 | 0.00 | 1000000.000 | 0.00 | 0.00 | | | |

REPORT- ES-D SUMMARY OF FUEL AND UTILITY USE AND COSTS

| MONTH | ELECTRIC UNIT= 3413.00 | FUEL-OIL UNIT= 138690.00 |
|---|---|---|
| JAN | | |
| ENERGY CONSUMPTION (UNIT/MO) | 492626. | 9890. |
| PEAK DEMAND (UNIT/HR) | 1461. | 37. |
| TOTAL COST ($) | 47942.91 | 5835.19 |
| FEB | | |
| ENERGY CONSUMPTION (UNIT/MO) | 443469. | 7948. |
| PEAK DEMAND (UNIT/HR) | 1461. | 40. |
| TOTAL COST ($) | 44408.58 | 4689.36 |
| MAR | | |
| ENERGY CONSUMPTION (UNIT/MO) | 508232. | 5637. |
| PEAK DEMAND (UNIT/HR) | 1461. | 24. |
| TOTAL COST ($) | 49061.30 | 3325.66 |
| APR | | |
| ENERGY CONSUMPTION (UNIT/MO) | 471791. | 1790. |
| PEAK DEMAND (UNIT/HR) | 1451. | 19. |
| TOTAL COST ($) | 46353.53 | 1056.25 |
| MAY | | |
| ENERGY CONSUMPTION (UNIT/MO) | 567732. | 223. |
| PEAK DEMAND (UNIT/HR) | 1896. | 4. |
| TOTAL COST ($) | 57064.89 | 131.38 |
| JUN | | |
| ENERGY CONSUMPTION (UNIT/MO) | 695767. | 0. |
| PEAK DEMAND (UNIT/HR) | 1959. | 0. |
| TOTAL COST ($) | 71937.33 | 0.00 |
| JUL | | |
| ENERGY CONSUMPTION (UNIT/MO) | 702404. | 0. |
| PEAK DEMAND (UNIT/HR) | 1959. | 0. |
| TOTAL COST ($) | 72146.01 | 0.00 |
| AUG | | |
| ENERGY CONSUMPTION (UNIT/MO) | 731084. | 0. |
| PEAK DEMAND (UNIT/HR) | 1960. | 0. |
| TOTAL COST ($) | 74684.42 | 0.00 |
| SEP | | |
| ENERGY CONSUMPTION (UNIT/MO) | 658474. | 0. |
| PEAK DEMAND (UNIT/HR) | 1903. | 0. |
| TOTAL COST ($) | 68461.80 | 0.00 |
| OCT | | |
| ENERGY CONSUMPTION (UNIT/MO) | 538915. | 364. |
| PEAK DEMAND (UNIT/HR) | 1809. | 10. |
| TOTAL COST ($) | 54254.66 | 214.71 |
| NOV | | |
| ENERGY CONSUMPTION (UNIT/MO) | 465642. | 3862. |
| PEAK DEMAND (UNIT/HR) | 1460. | 23. |
| TOTAL COST ($) | 45994.72 | 2278.46 |
| DEC | | |
| ENERGY CONSUMPTION (UNIT/MO) | 491445. | 8658. |
| PEAK DEMAND (UNIT/HR) | 1461. | 28. |
| TOTAL COST ($) | 47858.02 | 5108.19 |
| TOTAL | | |
| ENERGY CONSUMPTION (UNIT/YR) | 6767581. | 38372. |
| PEAK DEMAND (UNIT/HR) | 1960. | 40. |
| TOTAL COST ($) | 680168.25 | 22639.20 |

ENTECH ENGINEERING    EZDOE - ELITE SOFTWARE DEVELOPMENT INC    DOE-2.1D    6/27/1996    16:27:41  EDL  RUN 1
READING,  PA  19603    4130.05 FT. MONMOUTH - MYER CENTER, NJ  FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

| MONTH | CHARGE-ASSIGNMENT (U-NAME) | LENGTH (HR/MO) | CONSUMPTION BY C-A (KWH) | ENERGY CHARGE ($) | MEASURED DEMAND (KW) | BILLING DEMAND (KW) | DEMAND CHARGE ($) | TOTAL CHARGES ($) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| | 4OFPKKWH | 744 | 492626. | 35419.79 | 1461. | 1461. | 0.00 | |
| | EONPKDMHTG | 252 | 299363. | 0.00 | 1461. | 1461. | 12523.13 | |
| | | | | | | | | 47942.91 |
| FEB | | | | | | | | |
| | 4OFPKKWH | 672 | 443469. | 31885.46 | 1461. | 1461. | 0.00 | |
| | EONPKDMHTG | 228 | 269721. | 0.00 | 1461. | 1461. | 12523.13 | |
| | | | | | | | | 44408.58 |
| MAR | | | | | | | | |
| | 4OFPKKWH | 744 | 508232. | 36541.90 | 1461. | 1461. | 0.00 | |
| | EONPKDMHTG | 276 | 325960. | 0.00 | 1461. | 1461. | 12519.40 | |
| | | | | | | | | 49061.30 |
| APR | | | | | | | | |
| | 4OFPKKWH | 720 | 471791. | 33921.80 | 1451. | 1451. | 0.00 | |
| | EONPKDMHTG | 252 | 296752. | 0.00 | 1451. | 1451. | 12431.73 | |
| | | | | | | | | 46353.53 |
| MAY | | | | | | | | |
| | 4OFPKKWH | 744 | 567732. | 40819.94 | 1896. | 1896. | 0.00 | |
| | EONPKDMHTG | 252 | 336181. | 0.00 | 1896. | 1896. | 16244.95 | |
| | | | | | | | | 57064.89 |
| JUN | | | | | | | | |
| | 4OFPKKWH | 456 | 286522. | 20600.94 | 1087. | 1087. | 0.00 | |
| | EONPKDMCL | 264 | 409245. | 0.00 | 1959. | 1959. | 18555.89 | |
| | EONPKKWH | 264 | 409245. | 32780.50 | 1959. | 1959. | 0.00 | |
| | | | | | | | | 71937.33 |
| JUL | | | | | | | | |
| | 4OFPKKWH | 504 | 325145. | 23377.89 | 1072. | 1072. | 0.00 | |
| | EONPKDMCL | 240 | 377259. | 0.00 | 1959. | 1959. | 18549.63 | |
| | EONPKKWH | 240 | 377259. | 30218.49 | 1959. | 1959. | 0.00 | |
| | | | | | | | | 72146.01 |
| AUG | | | | | | | | |
| | 4OFPKKWH | 468 | 297670. | 21402.45 | 1095. | 1095. | 0.00 | |
| | EONPKDMCL | 276 | 433414. | 0.00 | 1960. | 1960. | 18565.50 | |
| | EONPKKWH | 276 | 433414. | 34716.47 | 1960. | 1960. | 0.00 | |
| | | | | | | | | 74684.42 |
| SEP | | | | | | | | |
| | 4OFPKKWH | 468 | 281089. | 20210.29 | 1064. | 1064. | 0.00 | |
| | EONPKDMCL | 252 | 377386. | 0.00 | 1903. | 1903. | 18022.92 | |
| | EONPKKWH | 252 | 377386. | 30228.59 | 1903. | 1903. | 0.00 | |
| | | | | | | | | 68461.80 |
| OCT | | | | | | | | |
| | 4OFPKKWH | 744 | 538915. | 38747.98 | 1809. | 1809. | 0.00 | |
| | EONPKDMHTG | 240 | 309509. | 0.00 | 1809. | 1809. | 15506.68 | |
| | | | | | | | | 54254.66 |
| NOV | | | | | | | | |
| | 4OFPKKWH | 720 | 465642. | 33479.64 | 1460. | 1460. | 0.00 | |
| | EONPKDMHTG | 240 | 283059. | 0.00 | 1460. | 1460. | 12515.08 | |
| | | | | | | | | 45994.72 |

REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

CONTINUED

| MONTH | CHARGE-ASSIGNMENT (U-NAME) | LENGTH (HR/MO) | CONSUMPTION BY C-A (KWH) | ENERGY CHARGE ($) | MEASURED DEMAND (KW) | BILLING DEMAND (KW) | DEMAND CHARGE ($) | TOTAL CHARGES ($) |
|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | |
| | 4OFPKKWH | 744 | 491445. | 35334.89 | 1461. | 1461. | 0.00 | |
| | EONPKDMHTG | 252 | 298950. | 0.00 | 1461. | 1461. | 12523.13 | |
| | | | | | | | | 47858.02 |
| TOTAL | | | 6767581. | 499687.00 | | | 180481.17 | 680168.25 |

ECO-10



| EQUIPMENT | AVG OPER RATIO | MAX LOAD (MBTU) | MON | DAY | HR | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 0.147 | 4.712 | 2 | 20 | 3 | 4.712 | 5088 | | | | | | | | |
| HERM-CENT-CHLR | 0.583 | 10.090 | 5 | 16 | 3 | 8.300 | 1836 | | | | | | | | |
| COOLING-TWR | 0.364 | 12.212 | 5 | 16 | 2 | 5.063 | 5800 | | | | | | | | |
| CTANK-STORAGE | 0.466 | 7.282 | 8 | 18 | 15 | 73.200 | 1836 | | | | | | | | |

| MMDDHH | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | COOLING-TWR FAN ELEC BTU/HR | COOLING-TWR PUMP ELEC BTU/HR | CTANK-ST ORAGE ENERGY RELEASED BTU/HR | CTANK-ST ORAGE ENERGY STORED BTU/HR | PLANT SYS COOL LOAD BTU/HR | PLANT TOTAL COOLING BTU/HR |
|---|---|---|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----(20) | ----(21) | ----( 1) | ----( 4) | ----( 2) | ----( 9) |
| 816 1 | 8325560. | 1646306. | 273323. | 96264. | 0. | 6100000. | 1922838. | 8325560. |
| 816 2 | 8069658. | 1583426. | 273323. | 96264. | 0. | 6100000. | 1666936. | 8069658. |
| 816 3 | 7946332. | 1547015. | 273323. | 96264. | 0. | 6100000. | 1543610. | 7946332. |
| 816 4 | 7880016. | 1530765. | 273323. | 96264. | 0. | 6100000. | 1477293. | 7880016. |
| 816 5 | 7816084. | 1515485. | 273323. | 96264. | 0. | 6100000. | 1413361. | 7816084. |
| 816 6 | 4439905. | 836564. | 202587. | 96264. | 0. | 1881376. | 2255807. | 4439905. |
| 816 7 | 4023550. | 770823. | 198421. | 96264. | 0. | 0. | 3720827. | 4023550. |
| 816 8 | 0. | 0. | 0. | 0. | 4767894. | 0. | 4465172. | 0. |
| 816 9 | 0. | 0. | 0. | 0. | 5323436. | 0. | 5020713. | 0. |
| 81610 | 0. | 0. | 0. | 0. | 5668898. | 0. | 5366176. | 0. |
| 81611 | 0. | 0. | 0. | 0. | 5932697. | 0. | 5629975. | 0. |
| 81612 | 0. | 0. | 0. | 0. | 6121349. | 0. | 5818626. | 0. |
| 81613 | 0. | 0. | 0. | 0. | 6339592. | 0. | 6036869. | 0. |
| 81614 | 0. | 0. | 0. | 0. | 6301569. | 0. | 5998846. | 0. |
| 81615 | 0. | 0. | 0. | 0. | 6079547. | 0. | 5776824. | 0. |
| 81616 | 0. | 0. | 0. | 0. | 5140494. | 0. | 4837772. | 0. |
| 81617 | 0. | 0. | 0. | 0. | 4859908. | 0. | 4557186. | 0. |
| 81618 | 0. | 0. | 0. | 0. | 4245308. | 0. | 3942585. | 0. |
| 81619 | 0. | 0. | 0. | 0. | 3482335. | 0. | 3179612. | 0. |
| 81620 | 9436227. | 1965759. | 273323. | 96264. | 0. | 6100000. | 3033505. | 9436227. |
| 81621 | 9203944. | 1900504. | 273323. | 96264. | 0. | 6100000. | 2801221. | 9203944. |
| 81622 | 9033544. | 1853528. | 273323. | 96264. | 0. | 6100000. | 2630822. | 9033544. |
| 81623 | 8886283. | 1813667. | 273323. | 96264. | 0. | 6100000. | 2483561. | 8886283. |
| 81624 | 8670088. | 1764909. | 273323. | 96264. | 0. | 6100000. | 2267366. | 8670088. |
| DAILY SUMMARY (AUG 16) | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 0. | 0. | 1413361. | 0. |
| MX | 9436227. | 1965759. | 273323. | 96264. | 6339592. | 6100000. | 6036869. | 9436227. |
| SM | 93731184. | 18728748. | 3134238. | 1155173. | 64263024. | 62881376. | 87847512. | 93731184. |
| AV | 3905466. | 780365. | 130593. | 48132. | 2677626. | 2620057. | 3660313. | 3905466. |

| | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | COOLING-TWR FAN ELEC BTU/HR | COOLING-TWR PUMP ELEC BTU/HR | CTANK-ST ORAGE ENERGY RELEASED BTU/HR | CTANK-ST ORAGE ENERGY STORED BTU/HR | PLANT SYS COOL LOAD BTU/HR | PLANT TOTAL COOLING BTU/HR |
|---|---|---|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----(20) | ----(21) | ----( 1) | ----( 4) | ----( 2) | ----( 9) |
| 817 1 | 8604961. | 1746886. | 273323. | 96264. | 0. | 6100000. | 2202239. | 8604961. |
| 817 2 | 8334408. | 1677937. | 273323. | 96264. | 0. | 6100000. | 1931685. | 8334408. |
| 817 3 | 8222406. | 1640857. | 273323. | 96264. | 0. | 6100000. | 1819684. | 8222406. |
| 817 4 | 8063390. | 1601300. | 273323. | 96264. | 0. | 6100000. | 1660668. | 8063390. |
| 817 5 | 7997030. | 1577434. | 273323. | 96264. | 0. | 6100000. | 1594308. | 7997030. |
| 817 6 | 6008083. | 1135227. | 267147. | 96264. | 0. | 3295936. | 2409424. | 6008083. |
| 817 7 | 4382274. | 835591. | 196199. | 96264. | 0. | 0. | 4079552. | 4382274. |
| 817 8 | 0. | 0. | 0. | 0. | 5224305. | 0. | 4921582. | 0. |
| 817 9 | 0. | 0. | 0. | 0. | 5784334. | 0. | 5481611. | 0. |
| 81710 | 0. | 0. | 0. | 0. | 6005673. | 0. | 5702950. | 0. |
| 81711 | 0. | 0. | 0. | 0. | 6404204. | 0. | 6101481. | 0. |
| 81712 | 0. | 0. | 0. | 0. | 6658178. | 0. | 6355456. | 0. |
| 81713 | 0. | 0. | 0. | 0. | 6764645. | 0. | 6461923. | 0. |
| 81714 | 0. | 0. | 0. | 0. | 6757686. | 0. | 6454963. | 0. |
| 81715 | 0. | 0. | 0. | 0. | 6389315. | 0. | 6086592. | 0. |
| 81716 | 0. | 0. | 0. | 0. | 5430626. | 0. | 5127904. | 0. |
| 81717 | 0. | 0. | 0. | 0. | 5217008. | 0. | 4914286. | 0. |
| 81718 | 0. | 0. | 0. | 0. | 4795852. | 0. | 4493130. | 0. |
| 81719 | 0. | 0. | 0. | 0. | 3885903. | 0. | 3583180. | 0. |
| 81720 | 9720236. | 2067104. | 273323. | 96264. | 0. | 6100000. | 3317514. | 9720236. |
| 81721 | 9415574. | 1978790. | 273323. | 96264. | 0. | 6100000. | 3012852. | 9415574. |
| 81722 | 9143795. | 1893148. | 273323. | 96264. | 0. | 6100000. | 2741072. | 9143795. |
| 81723 | 8946748. | 1830261. | 273323. | 96264. | 0. | 6100000. | 2544025. | 8946748. |
| 81724 | 8767966. | 1782318. | 273323. | 96264. | 0. | 6100000. | 2365244. | 8767966. |

DAILY SUMMARY (AUG 17)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| MN | 0. | 0. | 0. | 0. | 0. | 0. | 1594308. | 0. |
| MX | 9720236. | 2067104. | 273323. | 96264. | 6764645. | 6100000. | 6461923. | 9720236. |
| SM | 97606864. | 19766854. | 3196576. | 1155173. | 69317720. | 64295936. | 95363320. | 97606864. |
| AV | 4066953. | 823619. | 133191. | 48132. | 2888238. | 2678997. | 3973472. | 4066953. |

| | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | COOLING-TWR FAN ELEC BTU/HR | COOLING-TWR PUMP ELEC BTU/HR | CTANK-ST ORAGE ENERGY RELEASED BTU/HR | CTANK-ST ORAGE ENERGY STORED BTU/HR | PLANT SYS COOL LOAD BTU/HR | PLANT TOTAL COOLING BTU/HR |
|---|---|---|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----(20) | ----(21) | ----( 1) | ----( 4) | ----( 2) | ----( 9) |
| 818 1 | 8636384. | 1747349. | 273323. | 96264. | 0. | 6100000. | 2233661. | 8636384. |
| 818 2 | 8434174. | 1695263. | 273323. | 96264. | 0. | 6100000. | 2031452. | 8434174. |
| 818 3 | 8337630. | 1662596. | 273323. | 96264. | 0. | 6100000. | 1934908. | 8337630. |
| 818 4 | 8164430. | 1619410. | 273323. | 96264. | 0. | 6100000. | 1761707. | 8164430. |
| 818 5 | 7977811. | 1566811. | 273323. | 96264. | 0. | 6100000. | 1575088. | 7977811. |
| 818 6 | 8872317. | 1781146. | 273323. | 96264. | 0. | 6100000. | 2469595. | 8872317. |
| 818 7 | 6590370. | 1256014. | 269782. | 96264. | 0. | 2254912. | 4032736. | 6590370. |
| 818 8 | 0. | 0. | 0. | 0. | 5256840. | 0. | 4954118. | 0. |
| 818 9 | 0. | 0. | 0. | 0. | 5808053. | 0. | 5505331. | 0. |
| 81810 | 0. | 0. | 0. | 0. | 6218376. | 0. | 5915653. | 0. |
| 81811 | 0. | 0. | 0. | 0. | 6601525. | 0. | 6298802. | 0. |
| 81812 | 0. | 0. | 0. | 0. | 6680344. | 0. | 6377622. | 0. |
| 81813 | 0. | 0. | 0. | 0. | 7079866. | 0. | 6777144. | 0. |
| 81814 | 0. | 0. | 0. | 0. | 7281769. | 0. | 6979047. | 0. |
| 81815 | 0. | 0. | 0. | 0. | 6946938. | 0. | 6644215. | 0. |
| 81816 | 0. | 0. | 0. | 0. | 5940299. | 0. | 5637577. | 0. |
| 81817 | 0. | 0. | 0. | 0. | 5673811. | 0. | 5371089. | 0. |
| 81818 | 0. | 0. | 0. | 0. | 5161632. | 0. | 4858909. | 0. |
| 81819 | 0. | 0. | 0. | 0. | 4527616. | 0. | 4279052. | 0. |
| 81820 | 9870811. | 2178282. | 273323. | 96264. | 0. | 5567617. | 3946313. | 9870811. |
| 81821 | 9896245. | 2176541. | 273323. | 96264. | 0. | 5863693. | 3729829. | 9896245. |
| 81822 | 9895917. | 2176567. | 273323. | 96264. | 0. | 6078216. | 3514978. | 9895917. |
| 81823 | 9715632. | 2123515. | 273323. | 96264. | 0. | 6100000. | 3312910. | 9715632. |
| 81824 | 9510250. | 2062833. | 273323. | 96264. | 0. | 6100000. | 3107528. | 9510250. |
| DAILY SUMMARY (AUG 18) | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 0. | 0. | 1575088. | 0. |
| MX | 9896245. | 2178282. | 273323. | 96264. | 7281769. | 6100000. | 6979047. | 9896245. |
| SM | 105901968. | 22046324. | 3276335. | 1155173. | 73177064. | 68564432. | 103249272. | 105901968. |
| AV | 4412582. | 918597. | 136514. | 48132. | 3049044. | 2856851. | 4302053. | 4412582. |

| | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | COOLING- TWR FAN ELEC BTU/HR | COOLING- TWR PUMP ELEC BTU/HR | CTANK-ST ORAGE ENERGY RELEASED BTU/HR | CTANK-ST ORAGE ENERGY STORED BTU/HR | PLANT SYS COOL LOAD BTU/HR | PLANT TOTAL COOLING BTU/HR |
|---|---|---|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----(20) | ----(21) | ----( 1) | ----( 4) | ----( 2) | ----( 9) |
| 819 1 | 9253977. | 1988647. | 273323. | 96264. | 0. | 6100000. | 2851255. | 9253977. |
| 819 2 | 9131609. | 1940816. | 273323. | 96264. | 0. | 6100000. | 2728887. | 9131609. |
| 819 3 | 8924754. | 1883295. | 273323. | 96264. | 0. | 6100000. | 2522031. | 8924754. |
| 819 4 | 8851367. | 1851191. | 273323. | 96264. | 0. | 6100000. | 2448645. | 8851367. |
| 819 5 | 8810398. | 1839693. | 273323. | 96264. | 0. | 6100000. | 2407676. | 8810398. |
| 819 6 | 9572536. | 2049429. | 273323. | 96264. | 0. | 6100000. | 3169813. | 9572536. |
| 819 7 | 9967083. | 2169064. | 273323. | 96264. | 0. | 5071795. | 4592566. | 9967083. |
| 819 8 | 0. | 0. | 0. | 0. | 5613660. | 0. | 5310938. | 0. |
| 819 9 | 0. | 0. | 0. | 0. | 6122802. | 0. | 5820079. | 0. |
| 81910 | 0. | 0. | 0. | 0. | 6208665. | 0. | 5905942. | 0. |
| 81911 | 0. | 0. | 0. | 0. | 6379204. | 0. | 6076482. | 0. |
| 81912 | 0. | 0. | 0. | 0. | 6527596. | 0. | 6224874. | 0. |
| 81913 | 0. | 0. | 0. | 0. | 6886882. | 0. | 6584160. | 0. |
| 81914 | 0. | 0. | 0. | 0. | 6712683. | 0. | 6409960. | 0. |
| 81915 | 0. | 0. | 0. | 0. | 6310945. | 0. | 6008223. | 0. |
| 81916 | 0. | 0. | 0. | 0. | 5313110. | 0. | 5010388. | 0. |
| 81917 | 0. | 0. | 0. | 0. | 4922273. | 0. | 4619550. | 0. |
| 81918 | 0. | 0. | 0. | 0. | 4453642. | 0. | 4150920. | 0. |
| 81919 | 0. | 0. | 0. | 0. | 3853985. | 0. | 3551262. | 0. |
| 81920 | 9672672. | 2043004. | 273323. | 96264. | 0. | 6100000. | 3269949. | 9672672. |
| 81921 | 9353499. | 1951654. | 273323. | 96264. | 0. | 6100000. | 2950777. | 9353499. |
| 81922 | 9099245. | 1863682. | 273323. | 96264. | 0. | 6100000. | 2696522. | 9099245. |
| 81923 | 8820708. | 1781487. | 273323. | 96264. | 0. | 6100000. | 2417985. | 8820708. |
| 81924 | 8553722. | 1705005. | 273323. | 96264. | 0. | 6100000. | 2151000. | 8553722. |
| DAILY SUMMARY (AUG 19) | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 0. | 0. | 2151000. | 0. |
| MX | 9967083. | 2169064. | 273323. | 96264. | 6886882. | 6100000. | 6584160. | 9967083. |
| SM | 110011576. | 23066968. | 3279876. | 1155173. | 69305440. | 72171792. | 99879880. | 110011576. |
| AV | 4583816. | 961124. | 136661. | 48132. | 2887727. | 3007158. | 4161662. | 4583816. |

| | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | COOLING- TWR FAN ELEC BTU/HR | COOLING- TWR PUMP ELEC BTU/HR | CTANK-ST ORAGE ENERGY RELEASED BTU/HR | CTANK-ST ORAGE ENERGY STORED BTU/HR | PLANT SYS COOL LOAD BTU/HR | PLANT TOTAL COOLING BTU/HR |
|---|---|---|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----(20) | ----(21) | ----( 1) | ----( 4) | ----( 2) | ----( 9) |
| 820 1 | 8096428. | 1579772. | 273323. | 96264. | 0. | 6100000. | 1693705. | 8096428. |
| 820 2 | 7758868. | 1484915. | 273323. | 96264. | 0. | 6100000. | 1356146. | 7758868. |
| 820 3 | 8010178. | 1537843. | 273323. | 96264. | 0. | 6100000. | 1607456. | 8010178. |
| 820 4 | 7221889. | 1364512. | 273323. | 96264. | 0. | 6100000. | 819166. | 7221889. |
| 820 5 | 6973031. | 1302047. | 273323. | 96264. | 0. | 6100000. | 570308. | 6973031. |
| 820 6 | 6775062. | 1257684. | 273323. | 96264. | 0. | 6100000. | 372339. | 6775062. |
| 820 7 | 4922699. | 897925. | 270555. | 96264. | 0. | 4075616. | 544360. | 4922699. |
| 820 8 | 0. | 0. | 0. | 0. | 879383. | 0. | 576661. | 0. |
| 820 9 | 0. | 0. | 0. | 0. | 1387981. | 0. | 1085259. | 0. |
| 82010 | 0. | 0. | 0. | 0. | 1558670. | 0. | 1255947. | 0. |
| 82011 | 0. | 0. | 0. | 0. | 1033505. | 0. | 730782. | 0. |
| 82012 | 0. | 0. | 0. | 0. | 1851636. | 0. | 1548914. | 0. |
| 82013 | 0. | 0. | 0. | 0. | 1725235. | 0. | 1422512. | 0. |
| 82014 | 0. | 0. | 0. | 0. | 1687046. | 0. | 1384324. | 0. |
| 82015 | 0. | 0. | 0. | 0. | 1705681. | 0. | 1402959. | 0. |
| 82016 | 0. | 0. | 0. | 0. | 1630507. | 0. | 1327784. | 0. |
| 82017 | 0. | 0. | 0. | 0. | 1463423. | 0. | 1160700. | 0. |
| 82018 | 0. | 0. | 0. | 0. | 493246. | 0. | 190523. | 0. |
| 82019 | 0. | 0. | 0. | 0. | 321140. | 0. | 18418. | 0. |
| 82020 | 6488580. | 1204361. | 273323. | 96264. | 0. | 6100000. | 85857. | 6488580. |
| 82021 | 6451083. | 1195941. | 273323. | 96264. | 0. | 6100000. | 48360. | 6451083. |
| 82022 | 3914545. | 743357. | 204145. | 96264. | 0. | 3553600. | 58222. | 3914545. |
| 82023 | 348922. | 165933. | 122609. | 96264. | 0. | 0. | 46200. | 348922. |
| 82024 | 302722. | 143918. | 122012. | 96264. | 0. | 0. | 0. | 302722. |
| DAILY SUMMARY (AUG 20) | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| MX | 8096428. | 1579772. | 273323. | 96264. | 1851636. | 6100000. | 1693705. | 8096428. |
| SM | 67264008. | 12878207. | 2905905. | 1155173. | 15737450. | 56429216. | 19306902. | 67264008. |
| AV | 2802667. | 536592. | 121079. | 48132. | 655727. | 2351217. | 804454. | 2802667. |
| MONTHLY SUMMARY (AUG) | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| MX | 9967083. | 2178282. | 273323. | 96264. | 7281769. | 6100000. | 6979047. | 9967083. |
| SM | 474515584. | 96487104. | 15792929. | 5775866. | 291800672. | 324342752. | 405646880. | 474515584. |
| AV | 3954297. | 804059. | 131608. | 48132. | 2431672. | 2702856. | 3380391. | 3954297. |
| YEARLY SUMMARY | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| MX | 9967083. | 2178282. | 273323. | 96264. | 7281769. | 6100000. | 6979047. | 9967083. |
| SM | 474515584. | 96487104. | 15792929. | 5775866. | 291800672. | 324342752. | 405646880. | 474515584. |
| AV | 3954297. | 804059. | 131608. | 48132. | 2431672. | 2702856. | 3380391. | 3954297. |

ON-peak usage
EXISTING
ECO-10

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE
DEVELOPMENT INC DOE-2.1D 6/13/1996 23: 2:27 PDL RUN
1
READING, PA 19603 4130.05 FT. MONMOUTH -
MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
RP_1 = HOURLY-REPORT



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| MMDDHH | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | COOLING-TWR FAN ELEC BTU/HR | COOLING-TWR PUMP ELEC BTU/HR |
|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----(20) | ----(21) |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 302722. | 142762. | 106446. | 90465. |
| MX | 6348487. | 1259033. | 140410. | 90465. |
| SM | 392043168. | 81851664. | 17432774. | 11941428. |
| AV | 2970024. | 620088. | 132066. | 90465. |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 830509. | 372988. | 116437. | 90465. |
| MX | 7271629. | 1508870. | 140410. | 90465. |
| SM | 1194551552. | 232326624. | 36807304. | 23882852. |
| AV | 4524817. | 880025. | 139422. | 90465. |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 1498392. | 430245. | 133928. | 90465. |
| MX | 7050099. | 1439969. | 140410. | 90465. |
| SM | 1191595264. | 228574688. | 33685284. | 21711684. |
| AV | 4964981. | 952395. | 140355. | 90465. |
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 815628. | 371830. | 125262. | 90465. |
| MX | 7281769. | 1503519. | 140410. | 90465. |
| SM | 1354552192. | 262593360. | 38698604. | 24968436. |
| AV | 4907798. | 951425. | 140212. | 90465. |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 355402. | 167667. | 107591. | 90465. |
| MX | 6235474. | 1244477. | 140410. | 90465. |
| SM | 863843136. | 175084240. | 34185092. | 22797268. |
| AV | 3427949. | 694779. | 135655. | 90465. |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 357490. | 168654. | 107636. | 90465. |
| MX | 5014499. | 925996. | 140410. | 90465. |
| SM | 179807184. | 47664520. | 13535717. | 9770260. |
| AV | 1664881. | 441338. | 125331. | 90465. |

YEARLY SUMMARY

| | | | | |
|---|---|---|---|---|
| MN | 302722. | 142762. | 106446. | 90465. |
| MX | 7281769. | 1508870. | 140410. | 90465. |
| SM | 5176392704. | 1028095104. | 174344768. | 115071920. |
| AV | 4069491. | 808251. | 137064. | 90465. |

ECO-10

off-peak usage
EXISTING

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE
DEVELOPMENT INC DOE-2.1D 6/13/1996 23: 8:17 PDL RUN
1
READING, PA 19603 4130.05 FT. MONMOUTH -
MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
RP_1 = HOURLY-REPORT

PAGE 1- 1

| MMDDHH | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | COOLING-TWR FAN ELEC BTU/HR | COOLING-TWR PUMP ELEC BTU/HR |
|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----(20) | ----(21) |
| MONTHLY SUMMARY (MAY) | | | | |
| MN | 302722. | 142762. | 106446. | 90465. |
| MX | 5349443. | 1003488. | 140410. | 90465. |
| SM | 200589872. | 67526648. | 29018834. | 22797268. |
| AV | 795992. | 267963. | 115154. | 90465. |
| MONTHLY SUMMARY (JUN) | | | | |
| MN | 302722. | 142762. | 106446. | 90465. |
| MX | 4387579. | 852782. | 140410. | 90465. |
| SM | 799004608. | 201826736. | 59724352. | 41252200. |
| AV | 1752203. | 442603. | 130974. | 90465. |
| MONTHLY SUMMARY (JUL) | | | | |
| MN | 302722. | 142762. | 112750. | 90465. |
| MX | 4323691. | 846269. | 140410. | 90465. |
| SM | 1085108224. | 256997424. | 68565728. | 45594536. |
| AV | 2152993. | 509916. | 136043. | 90465. |
| MONTHLY SUMMARY (AUG) | | | | |
| MN | 302722. | 142762. | 107603. | 90465. |
| MX | 4581775. | 923984. | 140410. | 90465. |
| SM | 870181440. | 218168096. | 62414300. | 42337780. |
| AV | 1859362. | 466171. | 133364. | 90465. |
| MONTHLY SUMMARY (SEP) | | | | |
| MN | 302722. | 142762. | 106446. | 90465. |
| MX | 3330085. | 669362. | 140410. | 90465. |
| SM | 558887744. | 166955264. | 58979604. | 42337784. |
| AV | 1194205. | 356742. | 126025. | 90465. |
| MONTHLY SUMMARY (OCT) | | | | |
| MN | 302722. | 142762. | 106446. | 90465. |
| MX | 2663557. | 566817. | 140410. | 90465. |
| SM | 112066016. | 47640048. | 28072178. | 22797272. |
| AV | 444706. | 189048. | 111398. | 90465. |

YEARLY SUMMARY

| | | | | |
|---|---|---|---|---|
| MN | 302722. | 142762. | 106446. | 90465. |
| MX | 5349443. | 1003488. | 140410. | 90465. |
| SM | 3625837824. | 959114240. | 306775008. | 217116832. |
| AV | 1510766. | 399631. | 127823. | 90465. |

ECO-10
CHILLER proposed
OFF-PEAK USAGE



| MMDDHH | HERM-CEN T-CHLR LOAD BTU/HR ----( 1) | HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----( 3) | COOLING-TWR FAN ELEC BTU/HR ----(20) | COOLING-TWR PUMP ELEC BTU/HR ----(21) | CTANK-ST ORAGE ENERGY RELEASED BTU/HR ----( 1) | CTANK-ST ORAGE ENERGY STORED BTU/HR ----( 4) | PLANT SYS COOL LOAD BTU/HR ----( 2) | PLANT TOTAL COOLING BTU/HR ----( 9) |
|---|---|---|---|---|---|---|---|---|
| MONTHLY SUMMARY (MAY) | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| MX | 10089978. | 2124376. | 273323. | 96264. | 1955849. | 6100000. | 5046720. | 10089978. |
| SM | 656171456. | 136216416. | 33623428. | 18482770. | 41366828. | 496733568. | 124518680. | 656171456. |
| AV | 2603855. | 540541. | 133426. | 73344. | 164154. | 1971165. | 494122. | 2603855. |
| MONTHLY SUMMARY (JUN) | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| MX | 10003975. | 2162982. | 273323. | 96264. | 3572792. | 6100000. | 4619729. | 10003975. |
| SM | 1962902784. | 399551264. | 78906672. | 34655204. | 228377680. | 1394512768. | 658726208. | 1962902784. |
| AV | 4304612. | 876209. | 173041. | 75998. | 500828. | 3058142. | 1444575. | 4304612. |
| MONTHLY SUMMARY (JUL) | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| MX | 9859441. | 2119222. | 273323. | 96264. | 3674340. | 6100000. | 4080833. | 9859441. |
| SM | 2315854336. | 469431840. | 87182632. | 35810376. | 363932832. | 1592337536. | 934877056. | 2315854336. |
| AV | 4594949. | 931412. | 172981. | 71052. | 722089. | 3159400. | 1854915. | 4594949. |
| MONTHLY SUMMARY (AUG) | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| MX | 9967083. | 2178282. | 273323. | 96264. | 3652677. | 6100000. | 4592566. | 9967083. |
| SM | 2195670528. | 449867264. | 84663120. | 35810376. | 191632736. | 1514996352. | 730578496. | 2195670528. |
| AV | 4691604. | 961255. | 180904. | 76518. | 409472. | 3237172. | 1561065. | 4691604. |
| MONTHLY SUMMARY (SEP) | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| MX | 9191487. | 1906205. | 273323. | 96264. | 3143705. | 6100000. | 3688951. | 9191487. |
| SM | 1444583552. | 299871680. | 69593840. | 34655204. | 194722208. | 1079039488. | 418591904. | 1444583552. |
| AV | 3086717. | 640751. | 148705. | 74050. | 416073. | 2305640. | 894427. | 3086717. |
| MONTHLY SUMMARY (OCT) | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| MX | 6916221. | 1285772. | 273323. | 96264. | 2663557. | 6100000. | 2360835. | 6916221. |
| SM | 302243744. | 69409032. | 24934110. | 17327596. | 45631888. | 236072096. | 35517524. | 302243744. |
| AV | 1199380. | 275433. | 98945. | 68760. | 181079. | 936794. | 140943. | 1199380. |
| YEARLY SUMMARY | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| MX | 10089978. | 2178282. | 273323. | 96264. | 3674340. | 6100000. | 5046720. | 10089978. |
| SM | 8877425664. | 1824347392. | 378903840. | 176741536. | 1065664128. | 6313691648. | 2902809856. | 8877425664. |
| AV | 3698927. | 760145. | 157877. | 73642. | 444027. | 2630705. | 1209504. | 3698927. |

ECO-41



| EQUIPMENT | AVG OPER RATIO | MAX LOAD (MBTU) | MON | DAY | HR | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS | SIZE (MBTU) | OPER HRS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HW-BOILER | 0.147 | 4.712 | 2 | 20 | 3 | 4.712 | 5088 | | | | | | | | |
| HERM-CENT-CHLR | 0.398 | 11.449 | 5 | 16 | 2 | 8.300 | 2680 | | | | | | | | |
| COOLING-TWR | 0.302 | 13.624 | 5 | 16 | 2 | 5.063 | 7087 | | | | | | | | |
| CTANK-STORAGE | 0.752 | 3.700 | 10 | 14 | 16 | 44.000 | 1836 | | | | | | | | |

Hourly Profile
ECO-11



| | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | COOLING-TWR FAN ELEC BTU/HR | COOLING-TWR PUMP ELEC BTU/HR | CTANK-STORAGE ENERGY RELEASED BTU/HR | CTANK-STORAGE ENERGY STORED BTU/HR | PLANT SYS COOL LOAD BTU/HR | PLANT TOTAL COOLING BTU/HR |
|---|---|---|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----(20) | ----(21) | ----( 1) | ----( 4) | ----( 2) | ----( 9) |
| 817 1 | 8604961. | 1746886. | 273323. | 96264. | 0. | 6100000. | 2202239. | 8604961. |
| 817 2 | 8334408. | 1677937. | 273323. | 96264. | 0. | 6100000. | 1931685. | 8334408. |
| 817 3 | 3431654. | 699418. | 190706. | 96264. | 0. | 1309248. | 1819684. | 3431654. |
| 817 4 | 1963390. | 516442. | 129866. | 96264. | 0. | 0. | 1660668. | 1963390. |
| 817 5 | 1897030. | 506345. | 129413. | 96264. | 0. | 0. | 1594308. | 1897030. |
| 817 6 | 2712147. | 598404. | 134175. | 96264. | 0. | 0. | 2409424. | 2712147. |
| 817 7 | 4382274. | 835591. | 196199. | 96264. | 0. | 0. | 4079552. | 4382274. |
| 817 8 | 1524305. | 489328. | 123001. | 96264. | 3700000. | 0. | 4921582. | 1524305. |
| 817 9 | 2084334. | 552305. | 126479. | 96264. | 3700000. | 0. | 5481611. | 2084334. |
| 81710 | 2305673. | 581841. | 129642. | 96264. | 3700000. | 0. | 5702950. | 2305673. |
| 81711 | 2704204. | 623467. | 130526. | 96264. | 3700000. | 0. | 6101481. | 2704204. |
| 81712 | 2958178. | 665086. | 131350. | 96264. | 3700000. | 0. | 6355456. | 2958178. |
| 81713 | 3064645. | 684241. | 132624. | 96264. | 3700000. | 0. | 6461923. | 3064645. |
| 81714 | 3057686. | 678704. | 131905. | 96264. | 3700000. | 0. | 6454963. | 3057686. |
| 81715 | 2689315. | 633799. | 130502. | 96264. | 3700000. | 0. | 6086592. | 2689315. |
| 81716 | 1730626. | 517093. | 124716. | 96264. | 3700000. | 0. | 5127904. | 1730626. |
| 81717 | 1517008. | 491757. | 122012. | 96264. | 3700000. | 0. | 4914286. | 1517008. |
| 81718 | 1095852. | 454859. | 118174. | 96264. | 3700000. | 0. | 4493130. | 1095852. |
| 81719 | 612431. | 317287. | 114473. | 96264. | 3273472. | 0. | 3583180. | 612431. |
| 81720 | 9720236. | 2050749. | 273323. | 96264. | 0. | 6100000. | 3317514. | 9720236. |
| 81721 | 9415574. | 1978712. | 273323. | 96264. | 0. | 6100000. | 3012852. | 9415574. |
| 81722 | 9143795. | 1893147. | 273323. | 96264. | 0. | 6100000. | 2741072. | 9143795. |
| 81723 | 8946748. | 1830261. | 273323. | 96264. | 0. | 6100000. | 2544025. | 8946748. |
| 81724 | 8767966. | 1782318. | 273323. | 96264. | 0. | 6100000. | 2365244. | 8767966. |
| DAILY SUMMARY (AUG 17) | | | | | | | | |
| MN | 612431. | 317287. | 114473. | 96264. | 0. | 0. | 1594308. | 612431. |
| MX | 9720236. | 2050749. | 273323. | 96264. | 3700000. | 6100000. | 6461923. | 9720236. |
| SM | 102664432. | 22805980. | 4209023. | 2310346. | 43973472. | 44009248. | 95363320. | 102664432. |
| AV | 4277685. | 950249. | 175376. | 96264. | 1832228. | 1833719. | 3973472. | 4277685. |

| | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | COOLING- TWR FAN ELEC BTU/HR | COOLING- TWR PUMP ELEC BTU/HR | CTANK-ST ORAGE ENERGY RELEASED BTU/HR | CTANK-ST ORAGE ENERGY STORED BTU/HR | PLANT SYS COOL LOAD BTU/HR | PLANT TOTAL COOLING BTU/HR |
|---|---|---|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----(20) | ----(21) | ----( 1) | ----( 4) | ----( 2) | ----( 9) |
| 818 1 | 8636384. | 1747349. | 273323. | 96264. | 0. | 6100000. | 2233661. | 8636384. |
| 818 2 | 8434174. | 1695263. | 273323. | 96264. | 0. | 6100000. | 2031452. | 8434174. |
| 818 3 | 3547694. | 712602. | 193209. | 96264. | 0. | 1310064. | 1934908. | 3547694. |
| 818 4 | 2064430. | 524006. | 131377. | 96264. | 0. | 0. | 1761707. | 2064430. |
| 818 5 | 1877811. | 501406. | 131123. | 96264. | 0. | 0. | 1575088. | 1877811. |
| 818 6 | 2772317. | 599129. | 135208. | 96264. | 0. | 0. | 2469595. | 2772317. |
| 818 7 | 4335458. | 823574. | 198238. | 96264. | 0. | 0. | 4032736. | 4335458. |
| 818 8 | 1556840. | 486717. | 124188. | 96264. | 3700000. | 0. | 4954118. | 1556840. |
| 818 9 | 2108053. | 551507. | 128301. | 96264. | 3700000. | 0. | 5505331. | 2108053. |
| 81810 | 2518376. | 600111. | 130143. | 96264. | 3700000. | 0. | 5915653. | 2518376. |
| 81811 | 2901525. | 653210. | 131688. | 96264. | 3700000. | 0. | 6298802. | 2901525. |
| 81812 | 2980344. | 668098. | 132830. | 96264. | 3700000. | 0. | 6377622. | 2980344. |
| 81813 | 3379866. | 719375. | 134816. | 96264. | 3700000. | 0. | 6777144. | 3379866. |
| 81814 | 3581769. | 748129. | 134542. | 96264. | 3700000. | 0. | 6979047. | 3581769. |
| 81815 | 3246937. | 710006. | 131129. | 96264. | 3700000. | 0. | 6644215. | 3246937. |
| 81816 | 2240300. | 591015. | 124679. | 96264. | 3700000. | 0. | 5637577. | 2240300. |
| 81817 | 1973811. | 559647. | 122589. | 96264. | 3700000. | 0. | 5371089. | 1973811. |
| 81818 | 1461631. | 504285. | 118057. | 96264. | 3700000. | 0. | 4858909. | 1461631. |
| 81819 | 1310031. | 488012. | 116561. | 96264. | 3271744. | 0. | 4279052. | 1310031. |
| 81820 | 10349036. | 2085808. | 273323. | 192529. | 0. | 6100000. | 3946313. | 10349036. |
| 81821 | 10132552. | 2042872. | 273323. | 192529. | 0. | 6100000. | 3729829. | 10132552. |
| 81822 | 9917701. | 2001510. | 273323. | 192529. | 0. | 6100000. | 3514978. | 9917701. |
| 81823 | 9715632. | 2127740. | 273323. | 96264. | 0. | 6100000. | 3312910. | 9715632. |
| 81824 | 9510250. | 2062854. | 273323. | 96264. | 0. | 6100000. | 3107528. | 9510250. |
| DAILY SUMMARY (AUG 18) | | | | | | | | |
| MN | 1310031. | 486717. | 116561. | 96264. | 0. | 0. | 1575088. | 1310031. |
| MX | 10349036. | 2127740. | 273323. | 192529. | 3700000. | 6100000. | 6979047. | 10349036. |
| SM | 110552920. | 24204222. | 4231939. | 2599139. | 43971744. | 44010064. | 103249272. | 110552920. |
| AV | 4606372. | 1008509. | 176331. | 108297. | 1832156. | 1833753. | 4302053. | 4606372. |

| | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | COOLING-TWR FAN ELEC BTU/HR | COOLING-TWR PUMP ELEC BTU/HR | CTANK-STORAGE ENERGY RELEASED BTU/HR | CTANK-STORAGE ENERGY STORED BTU/HR | PLANT SYS COOL LOAD BTU/HR | PLANT TOTAL COOLING BTU/HR |
|---|---|---|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----(20) | ----(21) | ----( 1) | ----( 4) | ----( 2) | ----( 9) |
| 819 1 | 9253977. | 1988647. | 273323. | 96264. | 0. | 6100000. | 2851255. | 9253977. |
| 819 2 | 9131609. | 1940816. | 273323. | 96264. | 0. | 6100000. | 2728887. | 9131609. |
| 819 3 | 4136370. | 834952. | 190861. | 96264. | 0. | 1311616. | 2522031. | 4136370. |
| 819 4 | 2751367. | 628152. | 130092. | 96264. | 0. | 0. | 2448645. | 2751367. |
| 819 5 | 2710398. | 622943. | 129844. | 96264. | 0. | 0. | 2407676. | 2710398. |
| 819 6 | 3472536. | 726455. | 133998. | 96264. | 0. | 0. | 3169813. | 3472536. |
| 819 7 | 4895288. | 957644. | 196895. | 96264. | 0. | 0. | 4592566. | 4895288. |
| 819 8 | 1913660. | 540565. | 125266. | 96264. | 3700000. | 0. | 5310938. | 1913660. |
| 819 9 | 2422802. | 596014. | 128818. | 96264. | 3700000. | 0. | 5820079. | 2422802. |
| 81910 | 2508665. | 606618. | 130125. | 96264. | 3700000. | 0. | 5905942. | 2508665. |
| 81911 | 2679204. | 624143. | 130397. | 96264. | 3700000. | 0. | 6076482. | 2679204. |
| 81912 | 2827596. | 647588. | 131290. | 96264. | 3700000. | 0. | 6224874. | 2827596. |
| 81913 | 3186882. | 696752. | 131973. | 96264. | 3700000. | 0. | 6584160. | 3186882. |
| 81914 | 3012683. | 681800. | 131702. | 96264. | 3700000. | 0. | 6409960. | 3012683. |
| 81915 | 2610945. | 623708. | 130027. | 96264. | 3700000. | 0. | 6008223. | 2610945. |
| 81916 | 1613110. | 504844. | 122850. | 96264. | 3700000. | 0. | 5010388. | 1613110. |
| 81917 | 1222273. | 466486. | 118388. | 96264. | 3700000. | 0. | 4619550. | 1222273. |
| 81918 | 753642. | 394563. | 115478. | 96264. | 3700000. | 0. | 4150920. | 753642. |
| 81919 | 581505. | 299114. | 112712. | 96264. | 3272480. | 0. | 3551262. | 581505. |
| 81920 | 9672672. | 2049826. | 273323. | 96264. | 0. | 6100000. | 3269949. | 9672672. |
| 81921 | 9353499. | 1951686. | 273323. | 96264. | 0. | 6100000. | 2950777. | 9353499. |
| 81922 | 9099245. | 1863682. | 273323. | 96264. | 0. | 6100000. | 2696522. | 9099245. |
| 81923 | 8820708. | 1781487. | 273323. | 96264. | 0. | 6100000. | 2417985. | 8820708. |
| 81924 | 8553722. | 1705005. | 273323. | 96264. | 0. | 6100000. | 2151000. | 8553722. |
| DAILY SUMMARY (AUG 19) | | | | | | | | |
| MN | 581505. | 299114. | 112712. | 96264. | 0. | 0. | 2151000. | 581505. |
| MX | 9672672. | 2049826. | 273323. | 96264. | 3700000. | 6100000. | 6584160. | 9672672. |
| SM | 107184344. | 23733492. | 4203975. | 2310346. | 43972480. | 44011616. | 99879880. | 107184344. |
| AV | 4466015. | 988896. | 175166. | 96264. | 1832187. | 1833817. | 4161662. | 4466015. |

| | HERM-CEN T-CHLR LOAD BTU/HR | HERM-CEN T-CHLR ELECTRIC USE BTU/HR | COOLING-TWR FAN ELEC BTU/HR | COOLING-TWR PUMP ELEC BTU/HR | CTANK-STORAGE ENERGY RELEASED BTU/HR | CTANK-STORAGE ENERGY STORED BTU/HR | PLANT SYS COOL LOAD BTU/HR | PLANT TOTAL COOLING BTU/HR |
|---|---|---|---|---|---|---|---|---|
| | ----( 1) | ----( 3) | ----(20) | ----(21) | ----( 1) | ----( 4) | ----( 2) | ----( 9) |
| 820 1 | 8096428. | 1579772. | 273323. | 96264. | 0. | 6100000. | 1693705. | 8096428. |
| 820 2 | 7758868. | 1484915. | 273323. | 96264. | 0. | 6100000. | 1356146. | 7758868. |
| 820 3 | 3220147. | 645250. | 200639. | 96264. | 0. | 1309968. | 1607456. | 3220147. |
| 820 4 | 1121888. | 417839. | 129259. | 96264. | 0. | 0. | 819166. | 1121888. |
| 820 5 | 873031. | 396212. | 127424. | 96264. | 0. | 0. | 570308. | 873031. |
| 820 6 | 675061. | 319185. | 125392. | 96264. | 0. | 0. | 372339. | 675061. |
| 820 7 | 847083. | 394195. | 129385. | 96264. | 0. | 0. | 544360. | 847083. |
| 820 8 | 0. | 0. | 0. | 0. | 879383. | 0. | 576661. | 0. |
| 820 9 | 0. | 0. | 0. | 0. | 1387981. | 0. | 1085259. | 0. |
| 82010 | 0. | 0. | 0. | 0. | 1558670. | 0. | 1255947. | 0. |
| 82011 | 0. | 0. | 0. | 0. | 1033505. | 0. | 730782. | 0. |
| 82012 | 0. | 0. | 0. | 0. | 1851636. | 0. | 1548914. | 0. |
| 82013 | 0. | 0. | 0. | 0. | 1725235. | 0. | 1422512. | 0. |
| 82014 | 0. | 0. | 0. | 0. | 1687046. | 0. | 1384324. | 0. |
| 82015 | 0. | 0. | 0. | 0. | 1705681. | 0. | 1402959. | 0. |
| 82016 | 0. | 0. | 0. | 0. | 1630507. | 0. | 1327784. | 0. |
| 82017 | 0. | 0. | 0. | 0. | 1463423. | 0. | 1160700. | 0. |
| 82018 | 0. | 0. | 0. | 0. | 493246. | 0. | 190523. | 0. |
| 82019 | 0. | 0. | 0. | 0. | 321140. | 0. | 18418. | 0. |
| 82020 | 6488580. | 1204361. | 273323. | 96264. | 0. | 6100000. | 85857. | 6488580. |
| 82021 | 6451083. | 1195941. | 273323. | 96264. | 0. | 6100000. | 48360. | 6451083. |
| 82022 | 3918737. | 743976. | 204172. | 96264. | 0. | 3557792. | 58222. | 3918737. |
| 82023 | 348922. | 165933. | 122609. | 96264. | 0. | 0. | 46200. | 348922. |
| 82024 | 302722. | 143918. | 122012. | 96264. | 0. | 0. | 0. | 302722. |
| DAILY SUMMARY (AUG 20) | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| MX | 8096428. | 1579772. | 273323. | 96264. | 1851636. | 6100000. | 1693705. | 8096428. |
| SM | 40102552. | 8691497. | 2254184. | 1155173. | 15737450. | 29267760. | 19306902. | 40102552. |
| AV | 1670940. | 362146. | 93924. | 48132. | 655727. | 1219490. | 804454. | 1670940. |
| MONTHLY SUMMARY (AUG) | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| MX | 10349036. | 2127740. | 273323. | 192529. | 3700000. | 6100000. | 6979047. | 10349036. |
| SM | 455650208. | 100587112. | 19114532. | 10685350. | 191631328. | 205307968. | 405646880. | 455650208. |
| AV | 3797085. | 838226. | 159288. | 89045. | 1596928. | 1710900. | 3380391. | 3797085. |
| YEARLY SUMMARY | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| MX | 10349036. | 2127740. | 273323. | 192529. | 3700000. | 6100000. | 6979047. | 10349036. |
| SM | 455650208. | 100587112. | 19114532. | 10685350. | 191631328. | 205307968. | 405646880. | 455650208. |
| AV | 3797085. | 838226. | 159288. | 89045. | 1596928. | 1710900. | 3380391. | 3797085. |

ECO-11
ON-PEAK

ENTECH ENGINEERING
READING, PA 19603
RP_1 = HOURLY-REPORT

EZDOE - ELITE SOFTWARE DEVELOPMENT INC
4130.05 FT. MONMOUTH - MYER CENTER, NJ

DOE-2.1D 6/15/1996 1:24:15 PDL RUN 1
FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1



| MMDDHH | HERM-CEN T-CHLR LOAD BTU/HR ----( 1) | HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----( 3) | COOLING-TWR FAN ELEC BTU/HR ----(20) | COOLING-TWR PUMP ELEC BTU/HR ----(21) | CTANK-ST ORAGE ENERGY RELEASED BTU/HR ----( 1) | CTANK-ST ORAGE ENERGY STORED BTU/HR ----( 4) | PLANT SYS COOL LOAD BTU/HR ----( 2) | PLANT TOTAL COOLING BTU/HR ----( 9) |
|---|---|---|---|---|---|---|---|---|
| MONTHLY SUMMARY (MAY) | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 302722. | 0. | 0. | 0. |
| MX | 2648487. | 616376. | 135088. | 96264. | 3700000. | 0. | 6045765. | 2648487. |
| SM | 52971264. | 18375018. | 6362738. | 5005751. | 338857088. | 0. | 351868960. | 52971264. |
| AV | 401297. | 139205. | 48203. | 37922. | 2567099. | 0. | 2665674. | 401297. |
| MONTHLY SUMMARY (JUN) | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 1114873. | 0. | 812151. | 0. |
| MX | 3571629. | 751448. | 134514. | 96264. | 3700000. | 0. | 6968906. | 3571629. |
| SM | 282317312. | 86843608. | 24336650. | 18771562. | 914471296. | 0. | 1116869888. | 282317312. |
| AV | 1069384. | 328953. | 92184. | 71104. | 3463907. | 0. | 4230568. | 1069384. |
| MONTHLY SUMMARY (JUL) | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 2356196. | 0. | 2053473. | 0. |
| MX | 3350099. | 715213. | 135483. | 96264. | 3700000. | 0. | 6747377. | 3350099. |
| SM | 316338784. | 97399040. | 27898160. | 21274440. | 872915456. | 0. | 1116600832. | 316338784. |
| AV | 1318078. | 405829. | 116242. | 88644. | 3637148. | 0. | 4652504. | 1318078. |
| MONTHLY SUMMARY (AUG) | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 1092452. | 0. | 789730. | 0. |
| MX | 3581769. | 748129. | 135909. | 96264. | 3700000. | 0. | 6979047. | 3581769. |
| SM | 366838848. | 109692824. | 30728180. | 23488520. | 985642496. | 0. | 1268929792. | 366838848. |
| AV | 1329126. | 397438. | 111334. | 85103. | 3571169. | 0. | 4597572. | 1329126. |
| MONTHLY SUMMARY (SEP) | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 483018. | 0. | 180296. | 0. |
| MX | 2535474. | 609965. | 134598. | 96264. | 3700000. | 0. | 5932752. | 2535474. |
| SM | 121760576. | 41834348. | 14530494. | 11455467. | 740704128. | 0. | 786178688. | 121760576. |
| AV | 483177. | 166009. | 57661. | 45458. | 2939302. | 0. | 3119757. | 483177. |
| MONTHLY SUMMARY (OCT) | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 302722. | 0. | 0. | 0. |
| MX | 1314499. | 447063. | 132330. | 96264. | 3700000. | 0. | 4711777. | 1314499. |
| SM | 4782947. | 1908980. | 864847. | 673851. | 175286672. | 0. | 147375584. | 4782947. |
| AV | 44287. | 17676. | 8008. | 6239. | 1623025. | 0. | 1364589. | 44287. |
| YEARLY SUMMARY | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 302722. | 0. | 0. | 0. |
| MX | 3581769. | 751448. | 135909. | 96264. | 3700000. | 0. | 6979047. | 3581769. |
| SM | 1145009792. | 356053824. | 104721072. | 80669584. | 4027877376. | 0. | 4787823616. | 1145009792. |
| AV | 900165. | 279917. | 82328. | 63419. | 3166570. | 0. | 3764012. | 900165. |

ECO-11
Off-Peak

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/15/1996 1:20: 2 PDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
RP_1 = HOURLY-REPORT PAGE 1- 1

| MMDDHH | HERM-CEN T-CHLR LOAD BTU/HR ----( 1) | HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----( 3) | COOLING- TWR FAN ELEC BTU/HR ----(20) | COOLING- TWR PUMP ELEC BTU/HR ----(21) | CTANK-ST ORAGE ENERGY RELEASED BTU/HR ----( 1) | CTANK-ST ORAGE ENERGY STORED BTU/HR ----( 4) | PLANT SYS COOL LOAD BTU/HR ----( 2) | PLANT TOTAL COOLING BTU/HR ----( 9) |
|---|---|---|---|---|---|---|---|---|
| MONTHLY SUMMARY (MAY) | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| MX | 11449442. | 2174647. | 273323. | 192529. | 1955849. | 6100000. | 5046720. | 11449442. |
| SM | 575690880. | 121960280. | 31619334. | 18675298. | 41366828. | 416252896. | 124518680. | 575690880. |
| AV | 2284488. | 483969. | 125474. | 74108. | 164154. | 1651797. | 494122. | 2284488. |
| MONTHLY SUMMARY (JUN) | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| MX | 10062979. | 2149821. | 273323. | 192529. | 3572792. | 6100000. | 4619729. | 10062979. |
| SM | 1704813056. | 354296640. | 72701424. | 34751468. | 228377680. | 1136423424. | 658726208. | 1704813056. |
| AV | 3738625. | 776966. | 159433. | 76209. | 500828. | 2492157. | 1444575. | 3738625. |
| MONTHLY SUMMARY (JUL) | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| MX | 9859441. | 2116499. | 273323. | 96264. | 3674340. | 6100000. | 4080833. | 9859441. |
| SM | 1973575936. | 411029024. | 78867176. | 35810376. | 363932832. | 1250059520. | 934877056. | 1973575936. |
| AV | 3915825. | 815534. | 156482. | 71052. | 722089. | 2480277. | 1854915. | 3915825. |
| MONTHLY SUMMARY (AUG) | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| MX | 10349036. | 2127740. | 273323. | 192529. | 3652677. | 6100000. | 4592566. | 10349036. |
| SM | 1846620544. | 387588928. | 76387736. | 36099168. | 191632736. | 1166000640. | 730578496. | 1846620544. |
| AV | 3945771. | 828182. | 163222. | 77135. | 409472. | 2491454. | 1561065. | 3945771. |
| MONTHLY SUMMARY (SEP) | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| MX | 9191487. | 1893722. | 273323. | 96264. | 3143705. | 6100000. | 3688951. | 9191487. |
| SM | 1309061632. | 276886496. | 66190880. | 34655204. | 194722208. | 943517568. | 418591904. | 1309061632. |
| AV | 2797140. | 591638. | 141434. | 74050. | 416073. | 2016063. | 894427. | 2797140. |
| MONTHLY SUMMARY (OCT) | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| MX | 6916221. | 1285772. | 273323. | 96264. | 2663557. | 6100000. | 2360835. | 6916221. |
| SM | 293388768. | 68229096. | 24710630. | 17327596. | 45631888. | 227217088. | 35517524. | 293388768. |
| AV | 1164241. | 270750. | 98058. | 68760. | 181079. | 901655. | 140943. | 1164241. |
| YEARLY SUMMARY | | | | | | | | |
| MN | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| MX | 11449442. | 2174647. | 273323. | 192529. | 3674340. | 6100000. | 5046720. | 11449442. |
| SM | 7703150592. | 1619990528. | 350477184. | 177319120. | 1065664128. | 5139470848. | 2902809856. | 7703150592. |
| AV | 3209646. | 674996. | 146032. | 73883. | 444027. | 2141446. | 1209504. | 3209646. |

ECO-12

VARIABLE PUMPING

EXISTING CONDITIONS

ENTECH ENGINEERING  EZDOE - ELITE SOFTWARE DEVELOPMENT INC  DOE-2.1D 6/18/1996 20:50: 7 EDL RUN 1
READING, PA 19603  4130.05 FT. MONMOUTH - MYER CENTER, NJ  FTMOACO - SIM MCA H20 ONLY W/OA SCHD1

REPORT- ES-D SUMMARY OF FUEL AND UTILITY USE AND COSTS

| MONTH | ELECTRIC UNIT= 3413.00 | FUEL-OIL UNIT= 138690.00 |
|---|---|---|
| JAN | | |
| ENERGY CONSUMPTION (UNIT/MO) | 492409. | 9619. |
| PEAK DEMAND (UNIT/HR) | 1462. | 37. |
| TOTAL COST ($) | 50385.11 | 5675.37 |
| FEB | | |
| ENERGY CONSUMPTION (UNIT/MO) | 443235. | 7702. |
| PEAK DEMAND (UNIT/HR) | 1462. | 41. |
| TOTAL COST ($) | 46606.48 | 4543.95 |
| MAR | | |
| ENERGY CONSUMPTION (UNIT/MO) | 507936. | 5389. |
| PEAK DEMAND (UNIT/HR) | 1460. | 24. |
| TOTAL COST ($) | 51708.00 | 3179.24 |
| APR | | |
| ENERGY CONSUMPTION (UNIT/MO) | 471645. | 1667. |
| PEAK DEMAND (UNIT/HR) | 1450. | 19. |
| TOTAL COST ($) | 48771.78 | 983.57 |
| MAY | | |
| ENERGY CONSUMPTION (UNIT/MO) | 569655. | 209. |
| PEAK DEMAND (UNIT/HR) | 1922. | 4. |
| TOTAL COST ($) | 60200.39 | 123.51 |
| JUN | | |
| ENERGY CONSUMPTION (UNIT/MO) | 700313. | 0. |
| PEAK DEMAND (UNIT/HR) | 1992. | 0. |
| TOTAL COST ($) | 72612.47 | 0.00 |
| JUL | | |
| ENERGY CONSUMPTION (UNIT/MO) | 706960. | 0. |
| PEAK DEMAND (UNIT/HR) | 1987. | 0. |
| TOTAL COST ($) | 72770.63 | 0.00 |
| AUG | | |
| ENERGY CONSUMPTION (UNIT/MO) | 736229. | 0. |
| PEAK DEMAND (UNIT/HR) | 1989. | 0. |
| TOTAL COST ($) | 75364.64 | 0.00 |
| SEP | | |
| ENERGY CONSUMPTION (UNIT/MO) | 661987. | 0. |
| PEAK DEMAND (UNIT/HR) | 1929. | 0. |
| TOTAL COST ($) | 68992.77 | 0.00 |
| OCT | | |
| ENERGY CONSUMPTION (UNIT/MO) | 540086. | 323. |
| PEAK DEMAND (UNIT/HR) | 1831. | 9. |
| TOTAL COST ($) | 57068.06 | 190.39 |
| NOV | | |
| ENERGY CONSUMPTION (UNIT/MO) | 465371. | 3663. |
| PEAK DEMAND (UNIT/HR) | 1459. | 23. |
| TOTAL COST ($) | 48288.68 | 2160.91 |
| DEC | | |
| ENERGY CONSUMPTION (UNIT/MO) | 491305. | 8407. |
| PEAK DEMAND (UNIT/HR) | 1462. | 28. |
| TOTAL COST ($) | 50302.42 | 4960.15 |
| TOTAL | | |
| ENERGY CONSUMPTION (UNIT/YR) | 6787130. | 36978. |
| PEAK DEMAND (UNIT/HR) | 1992. | 41. |
| TOTAL COST ($) | 703071.44 | 21817.08 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/18/1996 20:50: 7 EDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

| MONTH | CHARGE-ASSIGNMENT (U-NAME) | LENGTH (HR/MO) | CONSUMPTION BY C-A (KWH) | ENERGY CHARGE ($) | MEASURED DEMAND (KW) | BILLING DEMAND (KW) | DEMAND CHARGE ($) | TOTAL CHARGES ($) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| | 4OFPKKWH | 492 | 193243. | 13894.16 | 787. | 787. | 0.00 | |
| | EONPKDMHTG | 252 | 299165. | 0.00 | 1462. | 1462. | 12527.85 | |
| | EONPKKWH | 252 | 299165. | 23963.10 | 1462. | 1462. | 0.00 | |
| | | | | | | | | 50385.11 |
| FEB | | | | | | | | |
| | 4OFPKKWH | 444 | 173699. | 12488.97 | 787. | 787. | 0.00 | |
| | EONPKDMHTG | 228 | 269534. | 0.00 | 1462. | 1462. | 12527.85 | |
| | EONPKKWH | 228 | 269534. | 21589.66 | 1462. | 1462. | 0.00 | |
| | | | | | | | | 46606.48 |
| MAR | | | | | | | | |
| | 4OFPKKWH | 468 | 182063. | 13090.36 | 787. | 787. | 0.00 | |
| | EONPKDMHTG | 276 | 325872. | 0.00 | 1460. | 1460. | 12515.29 | |
| | EONPKKWH | 276 | 325872. | 26102.35 | 1460. | 1460. | 0.00 | |
| | | | | | | | | 51708.00 |
| APR | | | | | | | | |
| | 4OFPKKWH | 468 | 174886. | 12574.32 | 787. | 787. | 0.00 | |
| | EONPKDMHTG | 252 | 296759. | 0.00 | 1450. | 1450. | 12427.03 | |
| | EONPKKWH | 252 | 296759. | 23770.44 | 1450. | 1450. | 0.00 | |
| | | | | | | | | 48771.78 |
| MAY | | | | | | | | |
| | 4OFPKKWH | 492 | 231908. | 16674.15 | 1058. | 1058. | 0.00 | |
| | EONPKDMHTG | 252 | 337747. | 0.00 | 1922. | 1922. | 16472.73 | |
| | EONPKKWH | 252 | 337747. | 27053.51 | 1922. | 1922. | 0.00 | |
| | | | | | | | | 60200.39 |
| JUN | | | | | | | | |
| | 4OFPKKWH | 456 | 286599. | 20606.45 | 1092. | 1092. | 0.00 | |
| | EONPKDMCL | 264 | 413713. | 0.00 | 1992. | 1992. | 18867.59 | |
| | EONPKKWH | 264 | 413713. | 33138.43 | 1992. | 1992. | 0.00 | |
| | | | | | | | | 72612.47 |
| JUL | | | | | | | | |
| | 4OFPKKWH | 504 | 325704. | 23418.14 | 1076. | 1076. | 0.00 | |
| | EONPKDMCL | 240 | 381256. | 0.00 | 1987. | 1987. | 18813.90 | |
| | EONPKKWH | 240 | 381256. | 30538.59 | 1987. | 1987. | 0.00 | |
| | | | | | | | | 72770.63 |
| AUG | | | | | | | | |
| | 4OFPKKWH | 468 | 297876. | 21417.29 | 1099. | 1099. | 0.00 | |
| | EONPKDMCL | 276 | 438353. | 0.00 | 1989. | 1989. | 18835.25 | |
| | EONPKKWH | 276 | 438353. | 35112.10 | 1989. | 1989. | 0.00 | |
| | | | | | | | | 75364.64 |
| SEP | | | | | | | | |
| | 4OFPKKWH | 468 | 281033. | 20206.26 | 1069. | 1069. | 0.00 | |
| | EONPKDMCL | 252 | 380955. | 0.00 | 1929. | 1929. | 18272.00 | |
| | EONPKKWH | 252 | 380955. | 30514.52 | 1929. | 1929. | 0.00 | |
| | | | | | | | | 68992.77 |
| OCT | | | | | | | | |
| | 4OFPKKWH | 504 | 229810. | 16523.32 | 965. | 965. | 0.00 | |
| | EONPKDMHTG | 240 | 310278. | 0.00 | 1831. | 1831. | 15691.49 | |
| | EONPKKWH | 240 | 310278. | 24853.25 | 1831. | 1831. | 0.00 | |
| | | | | | | | | 57068.06 |

ENTECH ENGINEERING    EZDOE - ELITE SOFTWARE DEVELOPMENT INC    DOE-2.1D 6/18/1996 20:50: 7 EDL RUN 1
READING, PA 19603    4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

---CONTINUED---

| MONTH | CHARGE-ASSIGNMENT (U-NAME) | LENGTH (HR/MO) | CONSUMPTION BY C-A (KWH) | ENERGY CHARGE ($) | MEASURED DEMAND (KW) | BILLING DEMAND (KW) | DEMAND CHARGE ($) | TOTAL CHARGES ($) |
|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | |
| | 4OFPKKWH | 480 | 182353. | 13111.20 | 787. | 787. | 0.00 | |
| | BONPKDMHTG | 240 | 283017. | 0.00 | 1459. | 1459. | 12507.81 | |
| | BONPKKWH | 240 | 283017. | 22669.67 | 1459. | 1459. | 0.00 | |
| | | | | | | | | 48288.68 |
| DEC | | | | | | | | |
| | 4OFPKKWH | 492 | 192529. | 13842.83 | 787. | 787. | 0.00 | |
| | BONPKDMHTG | 252 | 298773. | 0.00 | 1462. | 1462. | 12527.85 | |
| | BONPKKWH | 252 | 298773. | 23931.73 | 1462. | 1462. | 0.00 | |
| | | | | | | | | 50302.42 |
| TOTAL | | | 6787130. | 521084.78 | | | 181986.66 | 703071.44 |

variable speed on chilled water

ECO-12

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/18/1996 10:22:31 EDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOACO - SIM MCA H20 ONLY W/OA SCHD1
REPORT- ES-D SUMMARY OF FUEL AND UTILITY USE AND COSTS

VARIABLE PUMPING
PROPOSED CONDITIONS

| MONTH | ELECTRIC UNIT= 3413.00 | FUEL-OIL UNIT= 138690.00 |
|---|---|---|
| JAN | | |
| ENERGY CONSUMPTION (UNIT/MO) | 492409. | 9619. |
| PEAK DEMAND (UNIT/HR) | 1462. | 37. |
| TOTAL COST ($) | 50385.11 | 5675.37 |
| FEB | | |
| ENERGY CONSUMPTION (UNIT/MO) | 443235. | 7702. |
| PEAK DEMAND (UNIT/HR) | 1462. | 41. |
| TOTAL COST ($) | 46606.48 | 4543.95 |
| MAR | | |
| ENERGY CONSUMPTION (UNIT/MO) | 507936. | 5389. |
| PEAK DEMAND (UNIT/HR) | 1460. | 24. |
| TOTAL COST ($) | 51708.00 | 3179.24 |
| APR | | |
| ENERGY CONSUMPTION (UNIT/MO) | 471645. | 1667. |
| PEAK DEMAND (UNIT/HR) | 1450. | 19. |
| TOTAL COST ($) | 48771.78 | 983.57 |
| MAY | | |
| ENERGY CONSUMPTION (UNIT/MO) | 549054. | 209. |
| PEAK DEMAND (UNIT/HR) | 1907. | 4. |
| TOTAL COST ($) | 58547.22 | 123.51 |
| JUN | | |
| ENERGY CONSUMPTION (UNIT/MO) | 668670. | 0. |
| PEAK DEMAND (UNIT/HR) | 1988. | 0. |
| TOTAL COST ($) | 70228.48 | 0.00 |
| JUL | | |
| ENERGY CONSUMPTION (UNIT/MO) | 676374. | 0. |
| PEAK DEMAND (UNIT/HR) | 1983. | 0. |
| TOTAL COST ($) | 70481.09 | 0.00 |
| AUG | | |
| ENERGY CONSUMPTION (UNIT/MO) | 705402. | 0. |
| PEAK DEMAND (UNIT/HR) | 1986. | 0. |
| TOTAL COST ($) | 73053.52 | 0.00 |
| SEP | | |
| ENERGY CONSUMPTION (UNIT/MO) | 626595. | 0. |
| PEAK DEMAND (UNIT/HR) | 1915. | 0. |
| TOTAL COST ($) | 66227.12 | 0.00 |
| OCT | | |
| ENERGY CONSUMPTION (UNIT/MO) | 518685. | 323. |
| PEAK DEMAND (UNIT/HR) | 1801. | 9. |
| TOTAL COST ($) | 55224.77 | 190.39 |
| NOV | | |
| ENERGY CONSUMPTION (UNIT/MO) | 465371. | 3663. |
| PEAK DEMAND (UNIT/HR) | 1459. | 23. |
| TOTAL COST ($) | 48288.68 | 2160.91 |
| DEC | | |
| ENERGY CONSUMPTION (UNIT/MO) | 491305. | 8407. |
| PEAK DEMAND (UNIT/HR) | 1462. | 28. |
| TOTAL COST ($) | 50302.42 | 4960.15 |
| TOTAL | | |
| ENERGY CONSUMPTION (UNIT/YR) | 6616680. | 36978. |
| PEAK DEMAND (UNIT/HR) | 1988. | 41. |
| TOTAL COST ($) | 689824.69 | 21817.08 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/18/1996 10:22:31 EDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOACO - SIM MCA H20 ONLY W/OA SCHD1
REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

| MONTH | CHARGE-ASSIGNMENT (U-NAME) | LENGTH (HR/MO) | CONSUMPTION BY C-A (KWH) | ENERGY CHARGE ($) | MEASURED DEMAND (KW) | BILLING DEMAND (KW) | DEMAND CHARGE ($) | TOTAL CHARGES ($) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| | 4OFPKKWH | 492 | 193243. | 13894.16 | 787. | 787. | 0.00 | |
| | EONPKDMHTG | 252 | 299165. | 0.00 | 1462. | 1462. | 12527.85 | |
| | EONPKKWH | 252 | 299165. | 23963.10 | 1462. | 1462. | 0.00 | |
| | | | | | | | | 50385.11 |
| FEB | | | | | | | | |
| | 4OFPKKWH | 444 | 173699. | 12488.97 | 787. | 787. | 0.00 | |
| | EONPKDMHTG | 228 | 269534. | 0.00 | 1462. | 1462. | 12527.85 | |
| | EONPKKWH | 228 | 269534. | 21589.66 | 1462. | 1462. | 0.00 | |
| | | | | | | | | 46606.48 |
| MAR | | | | | | | | |
| | 4OFPKKWH | 468 | 182063. | 13090.36 | 787. | 787. | 0.00 | |
| | EONPKDMHTG | 276 | 325872. | 0.00 | 1460. | 1460. | 12515.29 | |
| | EONPKKWH | 276 | 325872. | 26102.35 | 1460. | 1460. | 0.00 | |
| | | | | | | | | 51708.00 |
| APR | | | | | | | | |
| | 4OFPKKWH | 468 | 174886. | 12574.32 | 787. | 787. | 0.00 | |
| | EONPKDMHTG | 252 | 296759. | 0.00 | 1450. | 1450. | 12427.03 | |
| | EONPKKWH | 252 | 296759. | 23770.44 | 1450. | 1450. | 0.00 | |
| | | | | | | | | 48771.78 |
| MAY | | | | | | | | |
| | 4OFPKKWH | 492 | 216930. | 15597.26 | 1014. | 1014. | 0.00 | |
| | EONPKDMHTG | 252 | 332124. | 0.00 | 1907. | 1907. | 16346.86 | |
| | EONPKKWH | 252 | 332124. | 26603.10 | 1907. | 1907. | 0.00 | |
| | | | | | | | | 58547.22 |
| JUN | | | | | | | | |
| | 4OFPKKWH | 456 | 263536. | 18948.23 | 1047. | 1047. | 0.00 | |
| | EONPKDMCL | 264 | 405134. | 0.00 | 1988. | 1988. | 18829.02 | |
| | EONPKKWH | 264 | 405134. | 32451.24 | 1988. | 1988. | 0.00 | |
| | | | | | | | | 70228.48 |
| JUL | | | | | | | | |
| | 4OFPKKWH | 504 | 302262. | 21732.64 | 1032. | 1032. | 0.00 | |
| | EONPKDMCL | 240 | 374111. | 0.00 | 1983. | 1983. | 18782.13 | |
| | EONPKKWH | 240 | 374111. | 29966.33 | 1983. | 1983. | 0.00 | |
| | | | | | | | | 70481.09 |
| AUG | | | | | | | | |
| | 4OFPKKWH | 468 | 275198. | 19786.74 | 1054. | 1054. | 0.00 | |
| | EONPKDMCL | 276 | 430204. | 0.00 | 1986. | 1986. | 18807.44 | |
| | EONPKKWH | 276 | 430204. | 34459.33 | 1986. | 1986. | 0.00 | |
| | | | | | | | | 73053.52 |
| SEP | | | | | | | | |
| | 4OFPKKWH | 468 | 255721. | 18386.33 | 1025. | 1025. | 0.00 | |
| | EONPKDMCL | 252 | 370874. | 0.00 | 1915. | 1915. | 18133.75 | |
| | EONPKKWH | 252 | 370874. | 29707.04 | 1915. | 1915. | 0.00 | |
| | | | | | | | | 66227.12 |
| OCT | | | | | | | | |
| | 4OFPKKWH | 504 | 213724. | 15366.73 | 900. | 900. | 0.00 | |
| | EONPKDMHTG | 240 | 304963. | 0.00 | 1801. | 1801. | 15430.54 | |
| | EONPKKWH | 240 | 304963. | 24427.50 | 1801. | 1801. | 0.00 | |
| | | | | | | | | 55224.77 |

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/18/1996 10:22:31 EDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

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|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | |
| | 4OFPKKWH | 480 | 182353. | 13111.20 | 787. | 787. | 0.00 | |
| | EONPKDMHTG | 240 | 283017. | 0.00 | 1459. | 1459. | 12507.81 | |
| | EONPKKWH | 240 | 283017. | 22669.67 | 1459. | 1459. | 0.00 | |
| | | | | | | | | 48288.68 |
| DEC | | | | | | | | |
| | 4OFPKKWH | 492 | 192529. | 13842.83 | 787. | 787. | 0.00 | |
| | EONPKDMHTG | 252 | 298773. | 0.00 | 1462. | 1462. | 12527.85 | |
| | EONPKKWH | 252 | 298773. | 23931.73 | 1462. | 1462. | 0.00 | |
| | | | | | | | | 50302.42 |
| TOTAL | | | 6616680. | 508461.22 | | | 181363.42 | 689824.69 |

# Attachment 8.13

# Scope of Study

Entech Engineering, Inc.

Consulting Engineers

Principals
Daniel J. Castellani, PE
Thomas M. McMahon, PE
William M. McMahon Jr., PE

# ENTECH

September 27, 1995

Entech #4130.05

Director of Public Works
ATTN: SELF-PW-E (Mr. Dooney)
Building 167 Riverside Avenue
Fort Monmouth, New Jersey 07703-5108

Re: **Indefinite Delivery-Type Contract No. DACA01-94-D-0037**
**Limited Energy Study, Myer Center, Ft. Monmouth, N.J.**

Dear Mr. Dooney:

As requested at our meeting on August 8, 1995, we are furnishing additional scope definitions for the Myer Center energy study. During our discussions you requested that the energy study not address just the steam system but also other major HVAC systems in the building. This concern was further substantiated by the project currently out for bidding to provide new hot water boilers to feed the two-pipe fan coil system. This project greatly reduces the need for steam to just a few users. In summary, Ft. Monmouth is already taking steps to replace the major steam load in Building 2700 and thus leaves limited options for additional energy savings. Future energy and conservation may, therefore, be more readily achievable via modifications/upgrades to other major HVAC systems.

In order to better accommodate your needs, we offer the following preliminary list of Energy Conservation Opportunities (ECOs) which could be considered and of which include other major HVAC systems serving Building 2700. We believe these ECOs would not only met your request, but also be possible within the current authorized contract fee. Please review the following list and forward your comments as soon as possible so that Entech may proceed without any schedule modifications.

<u>ECO List</u>

- Steam to Hot Water Heating Conversion
- Decentralize Steam Distribution System
- Direct Fired Domestic Hot Water Generator
- Decentralize Domestic Hot Water Distribution System
- Convert Steam Source HVAC Equipment to Hot Water

ENTECH

4 South Fourth Street
P.O. Box 32
Reading
Pennsylvania 19603

Office 610.373.6667

Fax 610.373.7537

- Occupied/Unoccupied Cycle Controls for HVAC Systems
- Cooling Tower Optimization
- Thermal Storage for Chilled Water System
- Efficient Chillers
- Convert Chilled Water System to Variable Flow Primary/Secondary System
- Automated Outside Air Reset Control for Hot Water Distribution Temperature Control
- Replace Domestic Hot Water Recirculation Pumps

I have discussed this change with Mr. James Kendall in Norfolk and he agrees with the revision to the project scope. A copy of our telephone conversation is attached for your records.

Should you have any questions or wish to discuss the preceding information, please do not hesitate to call. In addition, please find, attached, a project schedule for review and comment.

Sincerely,

Edward L. Caulkins

Edward L. Caulkins, P.E.
Project Manager

cc: Mr. James Kendall
Mr. Charles Konig
Mr. Battaglia
Mr. Kapur
Mr. William McMahon

G:\PROJECTS\4130.05\WP\DOONEY.L01

# ENTECH ENGINEERING INC.
# TELEPHONE AND CONFERENCE MEMORANDUM

DATE: 9-20-95

BY: Ed Caulkins

PROJECT NO.: 4130.05

PERSON(S): Jim Kendall

TELEPHONE NO: 804-441-7403

REPRESENTING: Norfolk District

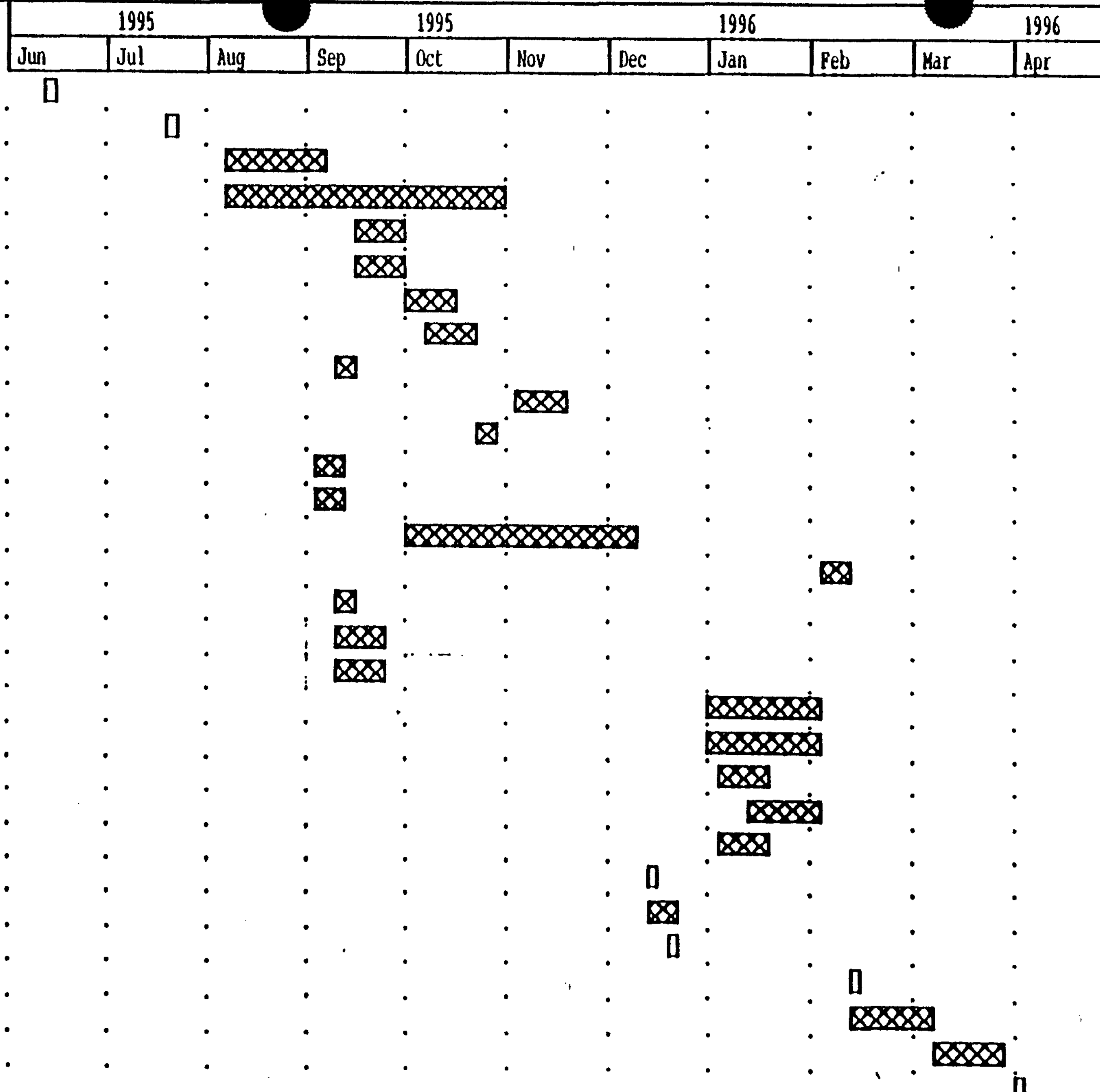
PHONE CODE: 036

SUBJECT: Scope of Study

NOTES: Discussed Kevin Dooney's request that Entech not focus totally on steam plant but cover other HVAC systems as well. The steam issue should not be removed from the study but should be reduced in effort & comprehensiveness to accommodate other HVAC systems which might offer significant energy savings.

Jim stated that as long as steam is not totally eliminated from the project scope, the revised focus is not a problem. There is no modification to the contract scope document required. Entech should forward a copy of the letter re: this change to Jim and Mr. Battaglia. Acceptance of this letter by Kevin Dooney is justification for modifications.

| | | Duration | Start Date |
|---|---|---|---|
| 1 | Notice to Proce | 0.00 Weeks | 6/14/95 |
| 2 | Kickoff Meeting | 0.00 Days | 7/21/95 |
| 3 | Data Gathering | 4.00 Weeks | 8/ 8/95 |
| 4 | Site Inspection | 12.00 Weeks | 8/ 8/95 |
| 5 | Heat Gain/Heat | 2.00 Weeks | 9/18/95 |
| 6 | Building Simula | 2.00 Weeks | 9/18/95 |
| 7 | Distribution Sy | 2.00 Weeks | 10/ 2/95 |
| 8 | Boiler System L | 2.00 Weeks | 10/ 9/95 |
| 9 | Fuel Use Analys | 1.00 Week | 9/11/95 |
| 10 | Regression Anal | 2.00 Weeks | 11/ 6/95 |
| 11 | Balance Supply/ | 1.00 Week | 10/23/95 |
| 12 | Utility Rate An | 1.00 Week | 9/ 5/95 |
| 13 | Draft ECO's | 1.20 Week | 9/ 4/95 |
| 14 | Preliminary ECO | 10.00 Weeks | 10/ 2/95 |
| 15 | Executive Summa | 1.00 Week | 2/ 5/96 |
| 16 | Methodology | 1.00 Week | 9/11/95 |
| 17 | Facility Descri | 2.00 Weeks | 9/11/95 |
| 18 | Energy Use | 2.00 Weeks | 9/11/95 |
| 19 | ECO's Recommend | 5.00 Weeks | 1/ 1/96 |
| 20 | ECO's Not Recom | 5.00 Weeks | 1/ 1/96 |
| 21 | Life Cycle Cost | 2.00 Weeks | 1/ 5/96 |
| 22 | Discussion | 3.00 Weeks | 1/15/96 |
| 23 | Attachments | 2.00 Weeks | 1/ 5/96 |
| 24 | Interim Submitt | 0.00 Weeks | 12/14/95 |
| 25 | Interim Review | 1.00 Week | 12/14/95 |
| 26 | Interim Present | 0.00 Weeks | 12/21/95 |
| 27 | Prefinal Submit | 0.00 Weeks | 2/14/96 |
| 28 | Ft. Monmouth Co | 3.00 Weeks | 2/15/96 |
| 29 | Incorporate Rev | 3.00 Weeks | 3/ 7/96 |
| 30 | Final Submissio | 0.00 Weeks | 4/ 1/96 |




Noncritical | Critical
Slack | Milestone
Project: SCHEDULE | Date: Sep 21, 1995 9:59 AM

Fort Monmouth
Limited Energy Study

Entech Engineering, Inc.

Consulting Engineers

Principals:
Daniel J. Castellani, PE
Thomas M. McManon, PE
William M. McManon Jr., PE

# ENTECH

## FAX TRANSMITTAL

DATE: 10.2.95 TIME: ______

ENTECH PROJECT #/NAME: ______

PLEASE DELIVER THE FOLLOWING PAGE(S) TO:

NAME: MR KEVIN DOONEY

FIRM: FT MONMOUTH

FAX #: 908-532-2367. PHONE CODE: 036

FROM: ED CAULKINS

REMARKS: KEVIN,

PLEASE CALL ME AFTER YOU HAVE A CHANCE TO REVIEW

Thanks

Ed

Original Sent Via:

☐ U.S. Mail

☐ Overnight Delivery Service

☒ FAX Only, Originals Not Sent

WE ARE TRANSMITTING 5 PAGE(S) (INCLUDING COVER PAGE)

If you do not receive all the pages, please call (610) 373-6667.

ENTECH
4 South Fourth Street
P.O. Box 32
Reading
Pennsylvania 19603

Office 610.373.6667

Fax 610.373.7537

**Entech Engineering, Inc.**

**Consulting Engineers**

Reading • Pottsville • Lehigh Valley

Principals:
Daniel J. Castellani, PE
Thomas M. McMahon, PE
William M. McMahon Jr., PE

# ENTECH

August 25, 1995

Entech #4130.05

Mr. Jim Kendall
Norfolk District
Attn: CENAO-EN-DE, Jim Kendall
803 Front Street
Norfolk, VA 23510

**Re: Ft. Monmouth - DACA01-94-D-0037**

Dear Jim:

I received a fax from Mr. Kapur of HQ, Forces Command, indicating that Ft. Monmouth is not a Forscom Installation. This fax was in the form of the Entech Meeting Minutes cover sheet with the previous note. I interpret this to mean that Mr. Kapur has no responsibility regarding this project and does not require copies of further communications. The contract documents list Mr. Kapur, therefore I am forwarding this to you for your input. Should we remove Mr. Kapur from the correspondence list or add someone else in his place? Please let me know what you would like us to do.

Sincerely,

Edward L. Caulkins

Edward L. Caulkins, P.E.
Project Manager

cc: Bill McMahon - Entech

ENTECH

4 South Fourth Street
P.O. Box 32
Reading
Pennsylvania 19603

Office 610.373.6667

Fax 610.373.7537

CENAO-EN-DE April 1995

# GENERAL SCOPE OF WORK

# FOR A

# LIMITED ENERGY STUDY

Performed as part of the

ENERGY ENGINEERING ANALYSIS PROGRAM (EEAP)

SCOPE OF WORK
FOR A
LIMITED ENERGY STUDY

TABLE OF CONTENTS

1. <u>BRIEF DESCRIPTION OF WORK</u>: The Architect-Engineer (AE) shall:

1.1 Review the previously completed Energy Engineering Analysis Program (EEAP) study which applies to the specific building, system, or energy conservation opportunity (ECO) covered by this study.

1.2 Perform a limited site survey of specific buildings or areas to collect all data required to evaluate the specific ECOs included in this study.

1.3 Reevaluate the specific project or ECO from the previous study to determine its economic feasibility based on revised criteria, current site conditions and technical applicability.

1.4 Evaluate specific ECOs to determine their energy savings potential and economic feasibility.

1.5 Provide project documentation for recommended ECOs as detailed herein.

1.6 Prepare a comprehensive report to document all work performed, the results and all recommendations.

2. <u>GENERAL</u>

2.1 This study is limited to the evaluation of the specific buildings, systems, or ECOs listed in Annex A, DETAILED SCOPE OF WORK.

2.2 The information and analysis outlined herein are considered to be minimum requirements for adequate performance of this study.

2.3 For the buildings, systems or ECOs listed in Annex A, all methods of energy conservation which are reasonable and practical shall be considered, including improvements of operational methods and procedures as well as the physical facilities. All energy conservation opportunities which produce energy or dollar savings shall be documented in this report. Any energy conservation opportunity considered not feasible shall also be documented in the report with reasons for elimination.

2.4 The study shall consider the use of all energy sources applicable to each building, system, or ECO.

2.5 The "Energy Conservation Investment Program (ECIP) Guidance", described in letter from DAIM-FDF-U, dated 10 Jan 1994 (including current updates) establishes criteria for ECIP projects and shall be used for performing the economic analyses of <u>all</u> ECOs and projects. The program, Life Cycle Cost In Design (LCCID), has been developed for performing life cycle cost calculations in accordance with ECIP guidelines and is referenced in the ECIP Guidance. If any program other than LCCID is proposed for life cycle cost analysis, it must use the mode of calculation specified in the ECIP Guidance. The output must be in the format of the ECIP LCCA summary sheet, and it must be submitted for approval to the Contracting Officer.

2.6 Computer modeling will be used to determine the energy savings of ECOs which would replace or significantly change an existing heating, ventilating, and air conditioning (HVAC) system. The requirement to use computer modeling applies only to heated and air conditioned or air conditioned only buildings which exceed 8,000 square feet or heated-only buildings in excess of 20,000 square feet. Modeling will be done using a professionally recognized and proven computer program or programs that integrate architectural features with air conditioning, heating, lighting and other energy producing or consuming systems. These programs will be capable of simulating the features, systems, and thermal loads of the building under study. The program

will use established weather data files and may perform calculations on a true hour-by-hour basis or may condense the weather files and the number of calculations into several "typical" days per month. The Detailed Scope of Work, Annex A, will list programs that are acceptable to the Contracting Officer. If the AE desires to use a different program, it must be submitted for approval with a sample run, an explanation of all input and output data, and a summary of program methodology and energy evaluation capabilities.

2.7 Energy conservation opportunities determined to be technically and economically feasible shall be developed into projects acceptable to installation personnel. This may involve combining similar ECOs into larger packages which will qualify for ECIP or FEMP funding, and determining in coordination with installation personnel the appropriate packaging and implementation approach for all feasible ECOs.

2.7.1 Projects which qualify for ECIP funding shall be identified, separately listed, and prioritized by the Savings to Investment Ratio (SIR).

2.7.2 All feasible non-ECIP projects shall be ranked in order of highest to lowest SIR.

2.7.3 At some installations Energy Conservation and Management (ECAM) funding will be used instead of ECIP funding. The criteria for each program is the same. The Director of Public Works will indicate which program is used at this installation. This Scope of Work mentions only ECIP, however, ECAM is also meant.

2.8 Metric Reporting Requirements: In this study, the analyses of the ECOs may be performed using English or Metric units as long as they are consistent throughout the report. The final results of energy savings for individual recommended projects and for the overall study will be reported in units of MegaBTU per year and in MegaWatts per year. Paragraph 7.6.2 details requirements for the contents of the final submittal.

3. PROJECT MANAGEMENT

3.1 Project Managers. The AE shall designate a project manager to serve as a point of contact and liaison for work required under this contract. Upon award of this contract, the individual shall be immediately designated in writing. The AE's designated project manager shall be approved by the Contracting Officer prior to commencement of work. This designated individual shall be responsible for coordination of work required under this contract. The Contracting Officer will designate a project manager to serve as the Government's point of contact and liaison for all work required under this contract. This individual will be the Government's representative.

3.2 Installation Assistance. The Commanding Officer or authorized representative at the installation will designate an individual to assist the AE in obtaining information and establishing contacts necessary to accomplish the work required under this contract. This individual will be the installation representative.

3.3 Public Disclosures. The AE shall make no public announcements or disclosures relative to information contained or developed in this contract, except as authorized by the Contracting Officer.

3.4 Meetings. Meetings will be scheduled whenever requested by the AE or the Contracting Officer for the resolution of questions or problems encountered in the performance of the work. The AE's project manager and the Government's representative shall be required to attend and participate in all meetings pertinent to the work required under this contract as directed by the

Contracting Officer. These meetings, if necessary, will be in addition to the presentation and review conferences.

3.5 Site Visits, Inspections, and Investigations. The AE shall visit and inspect/investigate the site of the project as necessary and required during the preparation and accomplishment of the work.

3.6 Records

3.6.1 The AE shall provide a record of all significant conferences, meetings, discussions, verbal directions, telephone conversations, etc., with Government representative(s) relative to this contract in which the AE and/or designated representative(s) thereof participated. These records shall be dated and shall identify the contract number, and modification number if applicable, participating personnel, subject discussed and conclusions reached. The AE shall forward to the Contracting Officer within ten calendar days, a reproducible copy of the records.

3.6.2 The AE shall provide a record of requests for and/or receipt of Government furnished material, data, documents, information, etc., which if not furnished in a timely manner, would significantly impair the normal progression of the work under this contract. The records shall be dated and shall identify the contract number and modification number, if applicable. The AE shall forward to the Contracting Officer within ten calendar days, a reproducible copy of the record of request or receipt of material.

3.7 Interviews. The AE and the Government's representative shall conduct entry and exit interviews with the Director of Public Works before starting work at the installation and after completion of the field work. The Government's representative shall schedule the interviews at least one week in advance.

3.7.1 Entry. The entry interview shall describe the intended procedures for the survey and shall be conducted prior to commencing work at the facility. As a minimum, the interview shall cover the following points:

a. Schedules.

b. Names of energy analysts who will be conducting the site survey.

c. Proposed working hours.

d. Support requirements from the Director of Public Works.

3.7.2 Exit. The exit interview shall be held when the field work is essentially complete; it shall briefly describe the items surveyed and probable areas of energy conservation. The interview shall also solicit input and advice from the Director of Public Works.

4. SERVICES AND MATERIALS. All services, materials (except those specifically enumerated to be furnished by the Government), labor, supervision, and travel necessary to perform the work and render the data required under this contract are included in the lump sum price of the contract.

5. PROJECT DOCUMENTATION. All energy conservation opportunities which the AE has considered shall be included in one of the following categories and presented in the report as such:

5.1 ECIP Projects. To qualify as an ECIP project, an ECO, or several ECOs which have been combined, must have a construction cost estimate greater than $300,000, a Savings to Investment Ratio (SIR) greater than 1.25 and a simple payback period of less than ten years. The overall project and each discrete part of the project shall have an SIR greater than 1.25. All projects meeting the above criteria shall be arranged as specified in paragraph 2.7.1 and shall be provided with programming documentation. Programming documentation shall consist of a DD Form 1391 and life cycle cost analysis (LCCA) summary sheet(s) (with necessary backup data to verify the numbers presented). A life cycle cost analysis summary sheet shall be developed for each ECO and for the overall project when more than one ECO are combined. The energy savings for projects consisting of multiple ECOs must take into account the synergistic effects of the individual ECOs.

5.2 Non-ECIP Projects. Projects which do not meet ECIP criteria with regard to cost estimate, but which have an SIR greater than 1.25 shall be documented. Projects or ECOs in this category shall be arranged as specified in paragraph 2.7.2 and shall be provided with the following documentation: the life cycle cost analysis (LCCA) summary sheet completely filled out, a description of the work to be accomplished, backup data for the LCCA (energy savings calculations and cost estimate), and the simple payback period. The energy savings for projects consisting of multiple ECOs must take into account the synergistic effects of the individual ECOs. In addition these projects shall have the necessary documentation prepared, as required by the Government's representative, for one of the following categories:

a. Federal Energy Management Program (FEMP) Projects. A FEMP (or O&M Energy) project is one that results in needed maintenance or repair to an existing facility, or replaces a failed or failing existing facility, and also results in energy savings. The criteria are similar to the criteria for ECIP projects, i.e., SIR $\geq$ 1.25, and simple payback period of less than ten years. Projects with a construction cost estimate up to $1,000,000 shall be documented as outlined in par 5.2 above; projects over $1,000,000 shall be documented on 1391s. In the FEMP program, a system may be defined as "failed or failing" if it is inefficient or technically obsolete. However, if this strategy is used to justify a proposed project, the equipment to be replaced must have been in use for at least three years.

b. Low Cost/No Cost Projects. These are projects which the Director of Public Works (DPW) can perform using his resources. Documentation shall be as required by the DPW.

5.3 Nonfeasible ECOs. All ECOs which the AE has considered but which are not feasible, shall be documented in the report with reasons and justifications showing why they were rejected.

6. DETAILED SCOPE OF WORK. The Detailed Scope of Work is contained in Annex A.

7. WORK TO BE ACCOMPLISHED.

7.1 Review Previous Studies. Review the previous EEAP study which applies to the specific building, system, or ECO covered by this study. This review should acquaint the AE with the work that has been performed previously. Much of the information the AE may need to develop the ECOs in this study may be contained in the previous study.

7.2 Perform a Limited Site Survey. The AE shall obtain all necessary data to evaluate the ECOs or projects by conducting a site survey. However, the AE is encouraged to use any data that may have been documented in a previous study. The AE shall document his site survey on forms developed for the survey, or on standard forms, and submit these completed forms as part of the report. All test and/or measurement equipment shall be properly calibrated prior to its use.

7.3 Reevaluate Selected Projects. The AE shall reevaluate the projects and ECOs listed in Annex A. These projects and ECOs were previously identified but have not been accomplished or have been only partially accomplished. If the project or ECO is acceptable as is, that is, there are no changes to the basic project or ECO, the energy savings shown in the previous project may be accepted as accurate but the energy cost and construction cost estimates shall be updated based on the most current data available. With the above information the project shall then be analyzed based on current ECIP criteria. If the project or ECO is basically acceptable but some of the buildings in the original project have been deleted or new buildings can be added, the necessary changes shall be made to the energy savings, the energy costs and construction costs shall be updated, and the revised project or ECO shall then be analyzed using current ECIP guidance. If the original project or ECO has had numerous changes made to it so that all of the numbers are suspected of being inaccurate, but the project or ECO is still considered feasible, the AE shall develop the project from the beginning and analyze it with the current ECIP guidance. These projects shall be separately listed in the report.

7.4 Evaluate Selected ECOs. The AE shall analyze the ECOs listed in Annex A. These ECOs shall be analyzed in detail to determine their feasibility. Savings to Investment Ratios (SIRs) shall be determined using current ECIP guidance. The AE shall provide all data and calculations needed to support the recommended ECO. All assumptions and engineering equations shall be clearly stated. Calculations shall be prepared showing how all numbers in the ECO were figured. Calculations shall be an orderly step-by-step progression from the first assumption to the final number. Descriptions of the products, manufacturers catalog cuts, pertinent drawings and sketches shall also be included. A life cycle cost analysis summary sheet shall be prepared for each ECO and included as part of the supporting data.

7.5 Combine ECOs Into Recommended Projects. During the Interim Review Conference, as outlined in paragraph [7.6.1], the AE will be advised of the DPW's preferred packaging of recommended ECOs into projects for implementation. Some projects may be a combination of several ECOs, and others may contain only one. These projects will be evaluated and arranged as outlined in paragraphs 5.1, 5.2, and 5.3. Energy savings calculations shall take into account the synergistic effects of multiple ECOs within a project and the effects of one project upon another. The results of this effort will be reported in the Final Submittal per par [7.6.2].

7.6 Submittals, Presentations and Reviews. The work accomplished shall be fully documented by a comprehensive report. The report shall have a table of contents and shall be indexed. Tabs and dividers shall clearly and distinctly divide sections, subsections, and appendices. All pages shall be numbered. Names of the persons primarily responsible for the project shall be included. The AE shall give a formal presentation of the interim submittal to installation, command, and other Government personnel. Slides or view graphs showing the results of the study to date shall be used during the presentation. During the presentation, the personnel in attendance shall be given ample opportunity to ask questions and discuss any changes deemed necessary to the study. A review conference will be conducted the same day, following the presentation. Each comment presented at the review conference will be discussed and resolved or action items assigned. It is anticipated that the presentation and review conference will require approximately one working day. The presentation and review conference will be at the installation on the date agreeable to the Director of Public Works, the AE and the Government's representative. The Contracting Officer may require a resubmittal of any document(s), if such document(s) are not approved because they are determined by the Contracting Officer to be inadequate for the intended purpose.

7.6.1 Interim Submittal. An interim report shall be submitted for review after the field survey has been completed and an analysis has been performed on all of the ECOs. The report shall indicate the work which has been accomplished to date, illustrate the methods and justifications of the approaches taken and contain a plan of the work remaining to complete the study.

Calculations showing energy and dollar savings, SIR, and simple payback period of all the ECOs shall be included. The results of the ECO analyses shall be summarized by lists as follows:

a. All ECOs eliminated from consideration shall be grouped into one listing with reasons for their elimination as discussed in par 5.3.

b. All ECOs which were analyzed shall be grouped into two listings, recommended and non-recommended, each arranged in order of descending SIR. These lists may be subdivided by building or area as appropriate for the study.

The AE shall submit the Scope of Work and any modifications to the Scope of Work as an appendix to the report. A narrative summary describing the work and results to date shall be a part of this submittal. At the Interim Submittal and Review Conference, the Government's and AE's representatives shall coordinate with the Director of Public Works to provide the AE with direction for packaging or combining ECOs for programming purposes and also indicate the fiscal year for which the programming or implementation documentation shall be prepared. The survey forms completed during this audit shall be submitted with this report. The survey forms only may be submitted in final form with this submittal. They should be clearly marked at the time of submission that they are to be retained. They shall be bound in a standard three-ring binder which will allow repeated disassembly and reassembly of the material contained within.

7.6.2 Final Submittal. The AE shall prepare and submit the final report when all sections of the report are 100% complete and all comments from the interim submittal have been resolved. The AE shall submit the Scope of Work for the study and any modifications to the Scope of Work as an appendix to the submittal. The report shall contain a narrative summary of conclusions and recommendations, together with all raw and supporting data, methods used, and sources of information. The report shall integrate all aspects of the study. The recommended projects, as determined in accordance with paragraph 5, shall be presented in order of priority by SIR. The lists of ECOs specified in paragraph [7.6.1] shall also be included for continuity. The final report and all appendices shall be bound in standard three-ring binders which will allow repeated disassembly and reassembly. The final report shall be arranged to include:

a. An Executive Summary to give a brief overview of what was accomplished and the results of this study using graphs, tables and charts as much as possible (See Annex B for minimum requirements).

b. The narrative report describing the problem to be studied, the approach to be used, and the results of this study.

c. Documentation for the recommended projects (includes LCCA Summary Sheets).

d. Appendices to include as a minimum:

1) Energy cost development and backup data

2) Detailed calculations

3) Cost estimates

4) Computer printouts (where applicable)

5) Scope of Work

ANNEX A

DETAILED SCOPE OF WORK

1. LOCATION

A. General description. The Architect Engineer (AE) shall furnish all services, materials, supplies, labor, equipment, investigations, studies, and travel as required in connection with the feasibility study for the below identified project in accordance with the contract and all furnished instructions:

| INSTALLATION | DESCRIPTION |
|---|---|
| Fort Monmouth, NJ | Limited Energy Study (Bldg 2700) |

2. AUTHORIZATION (Not Required)

3. STUDY INSTRUCTIONS

If the Design Manuals, Guide Specifications, and/or Project Engineering Instructions do not cover a specific condition in question, the AE shall contact the Contracting Officer before proceeding. If there is a conflict in Engineering Instructions or other reference data, such questions or conflicts should be brought to the attention of the Contracting Officer before proceeding.

4. INSTALLATION REPRESENTATIVE

The installation representative for this contract will be Mr. Kevin Dooney, Director of Public Works.

5. COMPLETION SCHEDULE

The following schedule shall be used as a guide in approving payments on this contract. The interim report for shall be due not later than 180 days after Notice to Proceed. The prefinal report shall be due not later than 45 days after the interim report review conference. The final report shall be due not later than 30 days after the prefinal review conference.

6. METHOD OF PAYMENT

A. Title I. The AE shall prepare and submit to the US Army Engineer District, Norfolk, partial payment estimates in accordance with the attachment entitled "Instructions for Completion of ENG Form 93". Payment under this contract, for which property or services are provided in a series of partial executions or deliveries, will be made within 30 days after receipt of an invoice which has been properly executed by the AE.

B. Additional Conferences. Payment for furnishing the services of technically qualified representatives to attend additional conferences, when so requested in writing by the Contracting Officer, will be made at a rate per hour for the discipline involved plus travel expenses computed in accordance with Government Joint Travel Regulations in effect at the time travel is performed and actual cost of transportation.

7. The simulation programs acceptable for use in this study are listed below. Any substitutes must be submitted and approved as outlined in the basic scope of work.

A. Building Loads and System Thermodynamics (BLAST)

B. DOE 2.1B

C. Carrier E20 of Hourly Analysis Program (HAP)

D. Trane Air-Conditioning Economics (TRACE)

E. Beacon

8. LIFE CYCLE COSTING IN DESIGN (LCCID)

A computer program titled Life Cycle Costing in Design (LCCID) is available from the BLAST Support Office in Urbana. Illinois for a nominal fee. This computer program can be used for performing the economical calculations for ECIP and non-ECIP ECOS. The AE is encouraged to obtain and use this computer program. The BLAST Supporting Office can be contacted at 144 Mechanical Engineering Building, 1206 West Green Street, Urbana, Illinois 61801. The telephone number is (217) 333-3977 or (800) 842-5278.

9. FACILITY SURVEY

The Architect-Engineer (AE) shall conduct a survey of the buildings and building systems listed in accordance with HNDS86-188-ED-ME and as described herein. Each building/system shall be observed while operating. The survey shall include and document the following items:

A. The central steam plant including all boilers, auxiliaries, fuel systems, stack(s), internal steam piping, and physical structures.

B. The steam distribution system from the central steam plant to the outer wall of all buildings served by steam. The system will include piping, insulation, valves, controls, traps, vents, and associated structures. Special interest shall be given to equipment life, condition, and capacity.

C. Condensate return system similar to the steam system.

D. The chilled water system as it relates to reheating. due to overheating

E. Facilities which consume steam including peak steam demand, overall yearly use, and types of equipment served. This shall be limited to the overall system energy use and not to any particular individual user.

F. Those areas that may be needed for supplemental or auxiliary steam plants.

G. The fuel supply as it relates to the boiler plant operations.

H. The environmental equipment related to the boiler plant operations.

10. AUTOMATED REVIEW MANAGEMENT SYSTEM (ARMS) Not Required

11. GOVERNMENT-FURNISHED DATA

A. AR 415-15 Military Construction, Army (MCA) Program Development.

B. AR 415-20 Project Development and Design Approval.

C. TM 5-800-3 Project Development Brochure.

D. Engineering Instructions (as applicable).

E. Previous studies related to application of Steam at this site (where applicable).

12. SUBMITTAL REQUIREMENTS

COPIES REQUIRED

| ORGANIZATION | (Correspondence): Interim: Final and Prefinal Review | Executive Summary, Only |
|---|---|---|
| Norfolk District<br>Attn: CENAO-EN-DE, Jim Kendall<br>803 Front Street<br>Norfolk, VA 23510 | 5 | |
| Headquarters, Forces Command<br>Attn: FCEN-RDF, Mr. Naresh Kapur<br>Energy Office, Building 200<br>Ft. McPherson, GA 30330-6000 | 1 | |
| U.S. Army Engineer District, Mobile<br>Attn: CESAM-EN-DM (Mr. Battaglia)<br>Post Office Box 2288<br>109 St. Joseph Street<br>Mobile, AL 36602 | 1 | |
| Commander<br>USAED, North Atlantic<br>ATTN: CENAD-EN-MM (Mr Wong)<br>90 Church Street<br>New York, NY 10007 | | 1 |
| Commander<br>US Army Corps of Engineers<br>ATTN: CEMP-ET (Mr Gentil)<br>20 Massachusetts Avenue NW<br>Washington, DC, 20314 1000 . | | 1 (Final Only) |
| Commander<br>US Army Logistics Evaluation Agency<br>ATTN: LOEA-PL (Mr Keath)<br>New Cumberland Army Depot<br>New Cumberland, PA, 17070 5007 | | 1 (Final Only) |
| Director of Public Works<br>ATTN: SELFM-PW-E (Mr Dooney)<br>Bldg 167 (Riverside Ave.)<br>Fort Monmouth, NJ, 07703 5108 | 2 | 2 |

13. ANALYSIS OF SYSTEMS

The Architect Engineer (AE) will utilize standard methods of engineering calculations to understand current energy consumption in such detail as to permit identification of further improvement options.

HEAT LOSS CALCULATIONS A calculation of each facility's theoretical energy use due to building heat loss and heat gain will be made using energy models derived from ASHRAE standards.

STEAM DISTRIBUTION LOSSES Based upon the known arrangement and condition of the steam lines, a calculation shall be made showing the average rate of distribution losses and the overall costs associated with normal operation.

BOILER SYSTEM LOSSES Together with the boiler efficiency tests provide a calculation that will show total boiler system losses including stack losses, skin losses, partial load losses, blowdown losses and others that may apply.

CONDENSATE SYSTEM LOSSES Review the condensate return records and provide a calculation showing the costs of condensate not returned. Provide areas of loss, estimated loss quantities and costs

REGRESSION ANALYSIS Provide a calculation using historical energy consumption, weather data, occupancy, and other variables for potential mathematical correlation to support other energy calculations.

BALANCE OF ENERGY SUPPLY WITH USERS/LOSSES Provide a calculation by combining all calculations made in this study to match actual steam production with calculated energy use.

UTILITY RATE ANALYSIS Provide a separate calculation for each type of energy conserved-gas, oil, and electric. The incremental cost of fuel shall be used for all energy savings options.

CHECK REGULATORY REQUIREMENTS Provide a check of all regulatory bodies affecting emissions to the air or water discharges. Provide any recommendations made in compliance with such regulatory agencies.

14. METHOD

The Architect Engineer (AE) shall collect information on the existing boiler plant and steam system operations in order to have a reasonable understanding of operations, cost, energy use, problems, limitations, and future need. This shall be accomplished in the following steps.

DATA GATHERING From the start of the study the AE shall collect available data that will assist in energy use evaluations and recommendations. A partial list of data that shall be sought is as follows:

- Energy bills and summaries /
- Schedules
- Steam line drawings /
- Floor plans or building data /
- Site plans
- Maintenance records
- Steam load profiles
- Boiler plant operator logs ✓
- Temperature histories
- Energy management system profile NONE

SITE VISITS, INSPECTIONS A team of Engineers shall visit the facility. The inspection will cover areas covered in the study. Operators shall interviewed for operation of individual areas and systems.

Nameplate data will be collected as well as observations of arrangements, physical condition and effectiveness. The following measurements shall be collected:

- Pressure levels —
- Temperatures —
- Electrical loads —
- Steam flow rates —
- Schedules —
- Dimensions —

15. ENERGY CONSERVATION OPPORTUNITY INVESTIGATIONS

The AE shall investigate all reasonable options of saving energy and energy-related costs in the operation of the steam production and distribution systems. The approach used to identify each option is briefly described below.

Existing Conditions. This section describes the nature of the existing operating system, its energy use, costs, advantages and disadvantages. Data is usually transferred to this section from the calculations.

Proposed Idea. This section describes improvement ideas that are different from the existing conditions. They may describe a capital projects, modifications, or O&M procedures. The resulting improvements are described, energy costs, quantities and arrangements are briefly noted. Sufficient conceptual studies will be executed to determine feasibility, generate anticipated operational data and estimating values.

Construction Cost Estimate. A feasibility cost estimate in the format prescribed will be performed. The estimate breakdown will be included in the report showing known quantities and costs. Allowances for indirect costs and contingencies are included.

Annual Savings. The report will show the annual savings in energy, quantities, demand, costs, and BTU's. As the report is written, these savings are merely the difference between existing and proposed.

Discussion. This section of the report describes a number of relevant factors including payback period, impact on labor or non-energy costs, O&M concerns, appearances, comfort, life extension, etc. The intent of this section is to address normal impacts or uncertainties of various improvement ideas.

## 16. REPORT PREPARATION PHASE

The AE will prepare a Energy Analysis report which will fully document the steps previously described. The report will be prepared as follows.

Executive Summary - Section 1. The outline of the executive section is shown on Appendix B.

Methodology - Section 2. This part of the report describes the approach, sequence, assumptions, calculations methods, computer programs, sample outputs, etc. that were used for the study.

Facility Description - Section 3. The report will briefly discuss the buildings and systems covered by the study. It will show floor plans, layout flow diagrams, facility age and condition, major equipment characteristics by system, hours of operation, and concerns expressed by occupants and managers.

Energy Use and Costs - Section 4. The report will describe individual and combined energy and steam consumption for the past two years. The report will describe rate structures, incremental cost calculations, trends, and analysis of use by source. This section critically establishes baseline use of energy for later improvement possibilities.

ECOs Recommended - Section 5. This section describes in detail each of the Energy Conservation Opportunities (ECOs) that are recommended for adoption and funding. The approach to each ECO write-up has been discussed in the preceding section.

ECOs Not Recommended - Section 6. The report will also show ECOs that were investigated but not recommended for adoption due to economics, conflicts, with other ECOs or concerns of operations.

Discussion - Section 7. This part of the report will cover interesting findings of the study not related to other sections of the report. It may include recommendations for non-energy problems, further studies. O&M procedures, training, etc.

Attachments. As part of the report, there will be enclosures for photos, backup calculations, referenced materials such as rate tariffs, codes, etc.

Applications and Funding Requests. As part of this study, applications for project funding will be made in accordance with Section 5, Project Documentation and directions from local authorized persons. The exact level of funding and funding program (expected to be ECIP), will be at the direction of the facility manager.

Suggested Implementation Schedules. The report will also contain a suggested timetable for implementing various projects or programs. This recommendation will be made in consultation with various facility managers.

Operation and Maintenance Instructions. Where appropriate, the study will recommend the formation of procedures or changes to processes that relate to improved energy usage and costs through Operation and Maintenance.

Meetings. At the start of the project, a series of progress meetings will be summarized in minutes prepared and distributed by the AE. There will be a special meeting at the project start and final report phase.

Correspondence. Keeping Fort Monmouth informed of the progress of the conduct of this study shall be a priority. The information shall be transferred in a number of ways.

Progress reports shall be prepared on a monthly basis to highlight the significant events of the prior month. This shall be especially true for actions completed, problems discovered, schedule changes and ECO developments. The progress reports will accompany monthly billings and will form the basis for progress meetings.

Special letters shall be sent for matters of major importance or where schedule delay is not tolerable. This may be true of O&M findings that offer immediate cost savings.

Telephone calls, in-person visits, copies of correspondence and other communications shall be used to keep the post informed of energy analysis underway.

ANNEX B

## EXECUTIVE SUMMARY GUIDELINE

1. Introduction.

2. Building Data (types, number of similar buildings, sizes, etc.)

3. Present Energy Consumption of Buildings or Systems Studied.

   - Total Annual Energy Used.

   - Source Energy Consumption.

   Electricity - KWH, Dollars, BTU
   Fuel Oil - GALS, Dollars, BTU, MWH
   Natural Gas - THERMS, Dollars, BTU, MWH
   Propane - GALS, Dollars, BTU, MWH
   Other - QTY, Dollars, BTU, MWH

4. Reevaluated Projects Results.

5. Energy Conservation Analysis.

   - ECOs Investigated.

   - ECOs Recommended.

   - ECOs Rejected. (Provide economics or reasons)

   - ECIP Projects Developed. (Provide list)*

   - Non-ECIP Projects Developed. (Provide list)*

   - Operational or Policy Change Recommendations.

* Include the following data from the life cycle cost analysis summary sheet: the cost (construction plus SIOH), the annual energy savings (type and amount), the annual dollar savings, the SIR, the simple payback period and the analysis date.

6. Energy and Cost Savings.

   - Total Potential Energy and Cost Savings.

   - Percentage of Energy Conserved.

   - Energy Use and Cost Before and After the Energy Conservation Opportunities are Implemented.

ANNEX C

REQUIRED DD FORM 1391 DATA

To facilitate ECIP project approval, the following supplemental data shall be provided:

a. In title block clearly identify projects as "ECIP."

b. Complete description of each item of work to be accomplished including quantity, square footage, etc.

c. A comprehensive list of buildings, zones, or areas including building numbers, square foot floor, etc.

(11) Latest MCP Index, essential for projecting costs for project documentation.

(12) The following items are important and should be provided to the AE to the extent to which they are available:

(a) As-built drawings of applicable buildings, equipment, or systems

(b) Handbooks or SOPs relating to the operation of applicable equipment or systems.

(c) Applicable records of energy or fuel usage.

(d) Copies of bills for electrical assumptions before and after improvements.

(4) Include source of expertise and demonstrate savings claimed. Identify any special or critical environmental conditions such as pressure relationships, exhaust or outside air quantities, temperatures, humidity, etc.

e. Claims for boiler efficiency improvements must identify data to support present properly adjusted boiler operation and future expected efficiency. If full replacement of boilers is indicated, explain rejection of alternatives such as replace burners, nonfunctioning controls, etc. Assessment of the complete existing installation is required to make accurate determinations of required retrofit actions.

f. Lighting retrofit projects must identify number and type of fixtures, and wattage of each fixture being deleted and installed. New lighting shall be only of the level to meet current criteria. Lamp changes in existing fixtures is not considered an ECIP type project.

g. An ECIP life cycle cost analysis summary sheet as shown in the ECIP Guidance shall be provided for the complete project and for each discrete part included in the project. The SIR is applicable to all segments of the project. Supporting documentation consisting of basic engineering and economic calculations showing how savings were determined shall be included.

h. The DD Form 1391 face sheet shall include, for the complete project, the annual dollar and MBTU savings, SIR, simple amortization period and a statement attesting that all buildings and retrofit actions will be in active use throughout the amortization period.

i. The calendar year in which the cost was calculated shall be clearly shown on the DD Form 1391.

j. For each temporary building included in a project, separate documentation is required showing (1) a minimum 10-year continuing need, based on the installation's annual real property utilization survey, for active building retention after retrofit, (2) the specific retrofit action applicable and (3) an economic analysis supporting the specific retrofit.

k. NAF funded facilities will not be included in an ECIP project without an accompanying statement certifying that utility costs are not reimbursable.

l. Any requirements required by ECIP guidance dated 10 Jan 1994 and any revisions thereto. Note that nonescalated costs/savings are to be used in the economic analyses.

m. The five digit category number for all ECIP projects except for Family Housing is 80000. The category code number for Family Housing projects is 71100.

FACSIMILE HEADER SHEET

| COMMAND/OFFICE | NAME/OFFICE SYMBOL | OFFICE PHONE | FAX |
|---|---|---|---|
| From: USAED Mobile, AL | Tony Battaglia CESAM-EN-DM | (334) 690-2618 | (334) 690-2424 |
| To: USAED Norfolk, VA | Jim Kendall CENAO-EN-DE | (804) 441-7703 | (804) 441-7831 |
| To: ENTECH Reading, PA | Matt LLoyd | (610) 373-6667 | (610) 373-7537 |

| CLASS | PREC | PAGES | DATE-TIME | MO | YR | RELEASER'S SIGNATURE |
|---|---|---|---|---|---|---|
| U | N | 2 | 14 1430 | 06 | 95 | Anthony W. Battaglia |

REMARKS

space below for communications center use only

Gentlemen:

The delivery order for the Limited Energy Study, Myer Center Steam System, Fort Monmouth, NJ, was signed today. A copy of the signed order, Form 1155, is attached. The complete package will follow by mail.

Now the real work starts. Best wishes for a high-quality, energy-saving, on-schedule study! Don't forget to send us copies of each submittal.

Good luck,

Tony B.

YDW

# ORDER FOR SUPPLIES OR SERVICES

(Contractor must submit four copies of invoice)

Form Approved
OMB No. 0704-0187
Expires Aug 31, 1992

PAGE 1 OF

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0187), Washington, DC 20503. Please DO NOT RETURN your form to either of these addresses. Send your completed form to the procurement official identified in item 6.

| 1. CONTRACT / PURCH ORDER NO. | 2. DELIVERY ORDER NO. | 3. DATE OF ORDER | 4. REQUISITION / PURCH REQUEST NO. | 5. CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REG 1 |
|---|---|---|---|---|
| DACA01-94-D-0037 | 0005 | 14 Jun 95 | | DO |

**6. ISSUED BY** CODE
US ARMY ENGINEER DISTRICT, MOBILE
P.O. BOX 2288
MOBILE, ALABAMA 36628-0001

**7. ADMINISTERED BY (If other than 6)** CODE
US ARMY ENGINEER DISTRICT, NORFOLK
803 FRONT STREET
NORFOLK, VA 23510-1096

**8. DELIVERY FOB**
[X] DEST
[ ] OTHER
(See Schedule if other)

**9. CONTRACTOR** CODE — FACILITY CODE

NAME AND ADDRESS
ENTECH ENGINEERING, INC.
500 PENN STREET
P.O. BOX 32
READING, PA 19603

**10. DELIVER TO FOB POINT BY (Date)**
SEE APPENDIX "A"

**11. MARK IF BUSINESS IS**
[ ] SMALL
[ ] SMALL DISADVANTAGED
[ ] WOMEN-OWNED

**12. DISCOUNT TERMS**
N/A

**13. MAIL INVOICES TO**
SEE BLOCK 14

**14. SHIP TO** CODE
US ARMY ENGINEER DISTRICT, MOBILE
ATTN: CENAO-EN-MP (MLECIK)
803 FRONT STREET
NORFOLK, VA 23510-1096

**15. PAYMENT WILL BE MADE BY** CODE
FINANCE AND ACCOUNTING OFFICER
US ARMY ENGINEER DISTRICT, MOBILE
803 FRONT STREET
NORFOLK, VA 23510-1096

MARK ALL PACKAGES AND PAPERS WITH CONTRACT OR ORDER NUMBER

**16. TYPE OF ORDER**

DELIVERY [X] This delivery order is issued on another Government agency or in accordance with and subject to terms and conditions of above numbered contract.

PURCHASE [ ] Reference your _______ furnish the following on terms specified herein.

ACCEPTANCE. THE CONTRACTOR HEREBY ACCEPTS THE OFFER REPRESENTED BY THE NUMBERED PURCHASE ORDER AS IT MAY PREVIOUSLY HAVE BEEN OR IS NOW MODIFIED, SUBJECT TO ALL OF THE TERMS AND CONDITIONS SET FORTH, AND AGREES TO PERFORM THE SAME.

NAME OF CONTRACTOR — SIGNATURE — TYPED NAME AND TITLE — DATE SIGNED

[X] If this box is marked, supplier must sign Acceptance and return the following number of copies:

**17. ACCOUNTING AND APPROPRIATION DATA / LOCAL USE**
2152050 08-8013 P70000000 S44110 RA5A635D051B400 (E87950221) $131,393.00 TOTAL

| 18. ITEM NO. | 19. SCHEDULE OF SUPPLIES / SERVICE | 20. QUANTITY ORDERED/ ACCEPTED* | 21. UNIT | 22. UNIT PRICE | 23. AMOUNT |
|---|---|---|---|---|---|
| 0001 | DELIVERY ORDER FOR EEAP PROGRAM, LIMITED ENERGY STUDY AT FORT MONMOUTH, NEW JERSEY | 1 | JOB | | $131,393.00 |

*If quantity accepted by the Government is same as quantity ordered, indicate by X. If different, enter actual quantity accepted below quantity ordered and encircle.

**24. UNITED STATES OF AMERICA**
Gene L Curtis
BY: GENE L. CURTIS
CONTRACTING / ~~ORDERING OFFICER~~

**25. TOTAL** $131,393.00

**29. DIFFERENCES**

**26. QUANTITY IN COLUMN 20 HAS BEEN**
[ ] INSPECTED [ ] RECEIVED [ ] ACCEPTED, AND CONFORMS TO THE CONTRACT EXCEPT AS NOTED

DATE — SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

**27. SHIP NO.**
[ ] PARTIAL
[ ] FINAL

**28. D.O. VOUCHER NO.**

**30. INITIALS**

**32. PAID BY**

**33. AMOUNT VERIFIED CORRECT FOR**

**31. PAYMENT**
[ ] COMPLETE
[ ] PARTIAL
[ ] FINAL

**34. CHECK NUMBER**

**35. BILL OF LADING NO.**

**36.** I certify this account is correct and proper for payment.

DATE — SIGNATURE AND TITLE OF CERTIFYING OFFICER

| 37. RECEIVED AT | 38. RECEIVED BY | 39. DATE RECEIVED | 40. TOTAL CONTAINERS | 41. S/R ACCOUNT NUMBER | 42. S/R VOUCHER NUMBER |
|---|---|---|---|---|---|
| | | | | | |

DD Form 1155, MAY 90 — Previous editions are obsolete.

Attachment 8.14

Review Comments

# INTERIM REVIEW COMMENTS

**EEAP LIMITED ENERGY STUDY**

***at***

**MYER CENTER**
**Ft. Monmouth, New Jersey**

***prepared by***

**ENTECH ENGINEERING, INC.**
**4 South Fourth Street**
**Reading, Pennsylvania 19603**
**610-373-6667**
**Entech #4130.05**

**May 17, 1996**

## Interim Review Comments and Responses

The following addresses the review comments (CESAM-EN-DM Comments - Battaglia) for the EEAP Limited Energy Study, Myer Center Steam & HVAC at Fort Monmouth, NJ along with our responses.

| Comment | Response |
|---|---|
| 1. General: The AE has done a very good job of collecting and presenting data on the mechanical system for this complicated building. | 1. General: Thank you for your positive comment. We appreciate the time and effort put forth in reviewing the report. |
| 2. Page 2-5: Correct description for kWh. | 2. Page 2-5: Description in abbreviations table for kWh was corrected from kilowatts per hour to kilowatt hour. |
| 3. Page 2-20, Par 2: Twenty years was entered as common criteria for economic life in the LCCAs. This value can vary depending on the type of system being analyzed. For a complete list of economic lives, see the ECIP Guidance. | 3. Page 2-20, Par 2: We are aware of the list for economic life in LCCAs. We will incorporate appropriately in individual LCCA's. |
| 4. Page 3-9: Correct typos in first and second paragraphs. | 4. Page 3-9: A couple of typographical errors were corrected in paragraphs 1 and 2. |
| 5. Page 3-7 & 3-9: With regard to the new hot water boilers for Building 2706; Please clarify if the base case energy usage and the analyses of the ECOs will assume new boilers in operation or not in operation. | 5. Page 3-7 & 3-9: Replacing steam heating with new hot water boilers in the middle of an EEAP study complicates the analysis of the past versus the future. With this study, the existing loads on the MCA water will be separated in the boiler plant related ECO analysis. The new boilers in Building 2706 will be assumed to be in operation supporting the MCA demands. The main ECO for this EEAP Study will focus on the viability of operating a large boiler plant and steam distribution with relatively small loads excluding the MCA demands. The losses and/or overheating of spaces is suspected to be excessive, thereby warranting the investigation of decentralizing this system. Also, decentralization can be accomplished such that the full-time operation and monitoring of the existing system can be reduced to part-time monitoring with the new installations. |
| 6. Page 3-12, Par 2: Delete unnecessary word after "water chiller". | 6. Page 3-12, Par 2: The unnecessary word was removed. |

| Comment | Response |
| --- | --- |
| 7. Page 3-16, Table 3.4.1.1: Some of the items listed, for example, 9-11, have both cooling equipment compressor data and chilled water data listed. It can't be both. Please clarify. | 7. Page 3-16, Table 3.4.1.1: When this list was originally comprised the compressor (hp) and (kW/ton) were omitted for the MCA chilled water loads which are handled by the Central Chiller Plant in Building 2706. Later, portioned values were then added for purposes of identifying the building/floor load totals and kW/ton averages. The MCA values in the "Est. Cooling Load/Compressor" columns shown were darkened to differentiate them from the others. Note: The connected (kW) loads in the electric model (Table 5.6.2.2) reflect that the values in the compressor columns of the listed MCA items in Table 3.4.1.1 and 2 were removed. Horsepower (hp) in the "Cooling Type (Est. Cond. Flow/hp)" columns relate only to the associated pumps and condenser fans excluding the MCA compressor loads. |
| 8. Page 3-16, Table 3.4.1.1: Cooling Equipment Field: Several items list plant chilled water at 55°F. Chilled water is usually supplied at 42-45°F. Should this apply to supply air temperature rather than chilled water temperature? | 8. Page 3-16, Table 3.4.1.1: The 55 degree chilled water reference for the MCA two-pipe system is correct. The building maintains this temperature because they want to minimize condensation from the fan coil units. Since the perimeter fan coils and the MCA air handlers serving other areas are on the same piping system the supply temperature will remain in the 50-55°F range. Areas requiring lower humidity control, or more cooling in general have been supplemented with other cooling sources (ie: Item 118 in Table 5.4.1.2 and some "Liebert Units" in other areas). Comfort is probably borderline on design days using the 55 degree water. |
| 9. Page 3-18: Suggest the following additions to the tables on page 3-18:<br>a. Table 3.1.4.3: add columns for Supply & Return Temperature.<br>b. Table 3.1.4.4: add column for equipment served. | 9. Page 3-18:<br>a. Columns were added for the supply (55°F) and return (65°F) for the Building 2706 chillers in Table 3.4.1.3.<br>b. The "Building Service" column in Table 3.4.1.4 was changed to "Equipment Served". CT-1 in Building 2706 supports the chiller plant only while the towers on the roof of Building 2700 support a variety of equipment. |
| 10. Page 3-25: Top line: Should the word "coils" be substituted for "unit heater"? | 10. Page 3-25: The phrase "unit heaters" was replaced with "coils". |

| Comment | Response |
|---|---|
| 11. Page 4-8: Regarding unavailability of fuel oil bills for months of June and November: Is it possible that they just did not order oil in June and November because they had enough in the tank for expected needs? Discuss in light of findings on pages 4-16 and 4-17. | 11. Page 4-8: The June and November oil bills were considered missing because no other information was available to consider otherwise. Records available to us did not confirm whether they existed or not. If the two months in question are considered to be months when oil was not ordered, then the estimated usage would be about 30% greater than the delivered totals. Fort Monmouth should be able to confirm whether fuel oil was ordered/delivered for June and November of 1994. We believe the report should remain as is unless further information is provided to the contrary. |
| 12. Page 4-14 & 4-15: Here two year's worth of steam production data are shown, with more steam produced in 93-94 then in 94-95; then they are averaged. Averaging is not always the best way to determine the typical year's performance. After all, that is the objective, to predict the typical year's performance. Wouldn't it be better to compare the steam production to the EZDOE output, which is based on a typical year's weather, and make adjustments on that basis? Please discuss. | 12. Page 4-14 & 4-15: Entech believes that the two year information for steam production is the best available source for identifying past steam production. The EZDOE output is a check of the heating and cooling loads for Building 2700 only. Cafeteria usage, domestic hot water, Buildings 2704, 2705 and 2715 usage and the system losses, which vary from month to month according to our findings, are beyond the EZDOE focus for this report. |
| 13. Page 4-16, par 4-6: Good work. | 13. Page 4-16: Thank you for your comment. This section has since been incorporated into Section 4-3. |
| 14. Page 5-3: Top of page, mentions heating for areas frequently open to outdoors. Suggest evaluating an ECO to serve such areas with direct-fired gas IR heaters. | 14. Page 5-3: While the use of direct fired gas IR heaters is an excellent idea, Fort Monmouth personnel have concluded that serving these areas with hot water during the heating season only will be acceptable. |
| 15. Page 5-3, Par 2, Sent 2: Change "supported a majority" to "supported by the majority". | 15. Page 5-3, Par 2: Paragraph corrected per comments. |

| Comment | Response |
|---|---|
| 16. Sec 5, General: I am concerned about the use of multiple models to determine building loads and predict system performance. Except for the development of the U values and the analysis of the smaller buildings, the use of the Degree Day Method seems to have done more to muddy the waters than to verify the loads and performances. Some of the following comments will illustrate these concerns. It is suggested that the time spent on the Degree Day Method for Building 2700 might have been more profitably spend on refining the inputs for the EZDOE model | 16. Sec 5, General: We agree that the Degree Day Method has limitations for modeling of loads as compared to EZDOE. The Degree Day Method spreadsheet is a standard format which we have developed from previous work to help verify the validity of other calculations. It does not have the ability to account for internal heat generation loads which offset some building heat loss. It does, however, give us a way to compare the EZDOE results on a gross basis. All ECO evaluations will be based on the Steam Use Model, EZDOE and Electric Model. We have made modifications to the EZDOE simulations to improve the accuracy of the model since the issuance of the Interim Report. |
| 17. Page 5-7: Regarding reheat for the clean rooms: The reheat load is taken from Table 3.4.1.2, presumably from the column labeled "Estimated Heating load, Reheat". How was this load estimated; was it based on construction drawings, or nameplate data? Par 5.2.2 goes on to assume that a certain percent of this load is required year round. I am concerned that an assumption on top of an estimate may result in too much error. Wouldn't it be just as easy and more accurate to model each clean room? | 17. Further review of these units suggests that the air supply is about 50,000 cfm and the outdoor air quantity is about 20% or 10,000 cfm. Initial calculations were in error. Psychometric calculations will be included in the Appendix for ECO support data. Detailing each cleanroom would require a thorough design review of information that was not provided to us. We believe our evaluation is a good approximation of the conditions for these spaces. Also, as mentioned EZDOE was not set up in this study for detailed analyses of individual spaces. Block loading of the cleanrooms was consistent with the other system/area evaluations. |
| 18. Page 5-10, Par 5.2.4, Sent 1; Change "food" to "for". | 18. Page 5-10: Paragraph corrected per comment. |
| 19. Page 5-13, Par 5.2.6, Sent 1: Change "from" to "by". | 19. Page 5-13: Paragraph corrected per comment. |
| 20. Page 5-17: I tried to determine the peak winter day steam demand based on the quantities presented in Section 5.2, and I came up with approximately 10,400 lb/hr. This is considerably less than the 15,000 pph mentioned on page 5-14 or the 17,000 pph mentioned on page 5-20. That leads me to suggest that the methods used in Sec 5.2 result in underestimating the requirements. | 20. Page 5-17: The rate of 10,400 lb/hr in Section 5.2 pertains to the connected heating loads for Building 2700 and 2706, whereas the 15,000 lb/hr reference for pipe velocities relates to the plant's steam production peak which includes additional loads for the cafeteria and Building 2704, 2705, and 2718, and of course the system losses. The corrected 16,000 lb/hr reference on page 5-20 pertains to the record peak of the winter of 1994. Both of these values were determined by reviewing the boiler logs in Appendices.(Refer to response to Comment 22.) |

| Comment | Response |
|---|---|
| 21. Page 5-20, Sent 2 below Table 5.3.2: Change "to" to "than". | 21. Page 5-20: Paragraph corrected per comment. |
| 22. Page 5-20: States that the peak steam demand in January 1994 was over 17,000 pph. Where is that data shown in this report? It is not reported in Table 4.5.1, Facilities Engineering Operating Log, nor in Table 4.5.2, Adjusted Steam Production. | 22. Page 5-20: It is apparent that some boiler logs were inadvertently mixed in with the fuel oil bills. The logs show that the hourly average "peak" for fuel use at 80% efficiency for both January 19 and 20, 1994 was close to 16,000 lb/hr. The values tabulated in Section 4 and modeled in Section 5.2 are average monthly figures. Actual hourly peaks are considered to be higher. |
| 23. Page 5-24 & 5-29: Color-coded floor plans are excellent. | 23. Page 5-24 & 5-29: Thank you for your comment. |
| 24. Page 5-30: Cooling Coil Temp shown as 55°F: Looks like this may refer to Leaving Air Temp rather than cooling medium temp. Please clarify. See Comment 8 above. | 24. Page 5-30: The information in question was changed to reflect that the Leaving Air Temperatures for the MCA system and the DX/Misc Cooling systems is 60°F and 55°F respectively. |
| 25. Page 5-32: Statement at top regarding occupancies: It would not seem too difficult to set up an occupancy schedule for the cafeteria. Data on the cafeteria was reported on Page 3-2. | 25. Page 32: Other than the general classification for the "cleanroom" spaces, the floors were subdivided in EZDOE by generalized system. This block loading method works well for estimating overall monthly or quarterly usage and peak totals. As with the case of the cafeteria and the auditorium the local system peaks are probably underestimated, but for the purposes of the analyses in this report, that detail was not considered important enough to differentiate in the block loads setup. |
| 26. Page 5-32: The note under Ventilation Rates stated that many areas do not received outdoor air. If people are working in these areas, their health demands that they receive ventilation, even if the cooling load is increased. The report should at the very least make a recommendation for introduction of outside air to meet the requirements of ASHRAE 62-1989. | 26. Page 5-32: As professional engineers, we would have been remiss to not mention the issue of minimum air (or lack of) conditions. Our intent was to comment on that subject in the comments and recommendations portion of Section 7. The introduction of additional outside air to the building will obviously do nothing to save energy. A paragraph was added to page 3-9 that also points out the fact that outside air is missing in many areas. |

| Comment | Response |
|---|---|
| 27. Page 5-32: Regarding infiltration: Please provide more background or give more explanation for the first statement regarding infiltration rates set for summer and winter. | 27. Page 5-32: The baseline infiltration rates were modified in EZDOE to 0.8 ach year round since the building is continuously exhausted. The 0.8 ach rate, suggests an ASHRAE definition for a loose to medium type construction for this building during winter conditions. Summer conditions at this rate are considered high but for this building the exhaust differential governs year round. This section will be modified to clarify this setting. |
| 28. Page 5-33: The very first sentence on this page could also use some additional background or explanation. | 28. Page 5-33: The following sentences were added to the infiltration portion of Section 5.4.3. "Many of the exhaust fans on the roof are designed with relatively low static pressure of 1" ± water gauge". The negative conditions existing in the building would suggest that the added static pressure would reduce the capacities of these fans and in some cases the fans probably exhaust very little air. |
| 29. Page 5-33, Sent 2: Change "roof" to "rate". | 29. Page 5-33: Paragraph corrected per comment. |
| 30. Page 5-37, Table 5.4.4.1: Should include "Base Case" in the title. | 30. Page 5-37, Table 5.4.4.1: Corrected per comment. |
| 31. Page 5-48 & General: The word "usage" is creating some confusion. In some places usage figures are given units of kWh, and in other places units of kW. Please be consistent. | 31. Page 5-48: Usage should be kWh, Page 5-48 was corrected to reflect that consistency. The remainder of the report will be reviewed for consistency. |
| 32. Page 6-2, ECO list 1.a. Heating: Mentions "hot water heating system/season". Was this intentional, or is it a typo? Please clarify. | 32. Page 6-2: System/season is intentional with the way we are preliminarily presenting the ECO scope. Converting areas utilizing steam available year round to hot water available for a 7 month season maybe unacceptable to some. The use of system/season hopefully highlighted that aspect. |
| 33. Page 6-4, Sec 6.3: Normally all ECOs are supposed to be analyzed by the time the interim report is submitted. Apparently, a different arrangement has been mutually agreed upon by the Norfolk District, For Monmouth, and the AE for this study. Please assure that sufficient time is provided for review and comment on ECO analyses prior to development of project documentation and submission of the final report. | 33. Page 6-4: Our intent is to allow for necessary time for review of the ECOs. |

| Comment | | Response | |
|---|---|---|---|
| 34. | Page 6-5: In the Proposal: Change "380 kW/ton" to "380 kW". | 34. | Page 6-5: Paragraph corrected per comments. |
| 35. | Page 6-6 and General: What bases is used for estimating the construction costs, Means, a quote, a combination? Please include the estimate with backup data where appropriate for each ECO analysis. | 35. | The cost estimates are for the most part based on Means. The estimate for this ECO was inadvertently left out of this submission. |

## Interim Review Comments and Responses

The following addresses the review comments (SEL-FM-PW-E Comments - Zatorski) for the EEAP Limited Energy Study, Myer Center Steam & HVAC at Fort Monmouth, NJ along with our responses.

| Comment | Response |
|---|---|
| 1. Sec 6.2<br>1a) Buildings 2705 & 2704 should be converted as per recommendation. | 1. Sec 6.2<br>1a) Agreed |
| 1b) Building 2700 cleanrooms may go out of business. Don't know at this time, Building 2705 as per recommendation. | 1b) Entech shall proceed with the assumption that the cleanrooms will continue to operate as is. Consideration for what might happen in the future is difficult to incorporate into an ECO analysis. Note: If the building steam is removed then a heat source of one type or another will still be required for these parts of the building. |
| 1c) Building 2700 Kitchen equipment. Per discussions with Mr. C. Stone, MWR Mgr. It will cost approximately 18K to replace the steam operated dish washer and steam tables. | 1c) Thank you for the input on the kitchen equipment. Further discussion with Mr. C. Stone clarified that the $18,000 is for both the kitchen equipment and installation costs, and that these appliances will utilize hot water fired locally by natural gas. Miscellaneous costs will be added in the ECO analysis to assure an adequate estimate for this work. |
| 1d) Building 2700 domestic hot water should be converted to gas fired equipment utilizing the existing distribution system. | 1d) Agreed |
| a) Project in progress in Building 2706. | a) The extra boiler mentioned in our submittal related to a unit that would be deemed necessary (by Fort Monmouth personnel) for supplying year round heat and/or reheat for areas outside the scope of the new cleanroom boiler for the base case. We are aware of the project in Building 2706 which supports the MCA system. Further discussion with Fort Monmouth personnel has confirmed that only the cleanroom heating/reheat load will be required during the summer in Building 2700. |
| b) Don't know how much of an impact will be left after ARL leaves, hold on this. | b) Refer to comment 1b. The use of hot water versus steam for the cleanroom boiler is a variation from the base case for an ECO comparison only. |

| Comment | | Response | |
|---|---|---|---|
| | c ) Not feasible or cost effective. Entirely to much piping construction required to achieve this. | | c) We appreciate your insight. The ECO evaluation should confirm your thoughts. |
| | d) Would be governed by cost effectiveness between the operation of electric and gas fired equipment. Costs of the actual equipment are probably the same. | | d) The ECO analyses will determine the best method for providing domestic hot water. |
| 2. | Sec 6: Don't agree, approximately 50 units will be required and will be maintenance intensive. | 2. | Sec 6: We appreciate your input on what might be required. The ECO evaluation should confirm your thoughts. |
| 3. | Sec 6: If you include FCUs you're talking about 1400 units. | 3. | Sec 6: Our intention was to address air handing units that are not dictated by space exhaust (outside air) quantities (ie: cleanrooms, etc.) Fan coil units (FCU's) will not use clocks. |
| 4. | Sec 6: Will need some kind of study on this. | 4. | Sec 6: Resolving the exhaust/infiltration problems associated with this building would take an extra study or evaluation beyond the scope of this project to properly discern how changes could be made. Our intent will be to demonstrate ECO findings associated with a reasonable scenario for this building. |
| 5. | Sec 6: Not cost effective per page 6-7 of this text. | 5. | Sec 6: Agreed |
| 6. | Sec 6: Not versed to comment. | 6. | Sec 6: No response required. |
| 7. | Sec 6: Not versed to comment. | 7. | Sec 6: No response required. |
| 8. | Sec 6: Will issue IJO for rehab of tower #5. | 8. | Sec 6: Our intent is to look at changes to the cooling tower (CT-1) for the chiller plant. |
| 9. - 12. | Sec 6: Not versed to comment. | 9.-12. | Sec 6: No response required. |

## Interim Review Comments and Responses

The following addresses the review comments (Comments - Konig) for the EEAP Limited Energy Study, Myer Center Steam & HVAC at Fort Monmouth, NJ along with our responses.

| Comment | | Response | |
|---|---|---|---|
| 1. | Entech did an excellent job of describing the existing conditions of the Myer Center and it's existing mechanical system. | 1. | Thank you for your comment. |
| 2. | Of the 12 ECOs on Entech's list only ECO #5 was evaluated. | 2. | Out intent was to supply an example (ECO #5) for review, and to list the ECOs to be evaluated. |
| 3. | Entech must evaluate the other 11 ECOs. | 3. | Our intent is to evaluate all 12 ECOs. |
| 4. | Page 3-1, Typos, Eatontown not Eatonville. | 4. | Page 3-1: Corrected. |

# RESPONSES TO PRE-FINAL REVIEW COMMENTS

**EEAP LIMITED ENERGY STUDY**

***at***

**MYER CENTER**
**Ft. Monmouth, New Jersey**

***prepared by***

**ENTECH ENGINEERING, INC.**
**4 South Fourth Street**
**Reading, Pennsylvania 19603**
**610-373-6667**
**Entech #4130.05**

**February 1997**

## Pre-final Review Comments and Responses

The following addresses the review comments (DPW - K. Dooney - Mech/General) for the EEAP Limited Energy Study, Myer Center Steam & HVAC at Fort Monmouth, NJ along with our responses.

| Comment | | Response | |
|---|---|---|---|
| 1. | Pg 1-3, Table 1.4.1; Real Property records for building 2705 indicate that building is 47,592 sf. | 1. | The square footage for Building 2705 was revised to 47,592. |
| 2. | Pg 1-5, para 1.7; 2nd para of 1.7 states identification of opportunities with building 2700 HVAC system was limited. The subsequent sentence provides 2 reasons, however, it is not clear how these reasons especially "the large number of miscellaneous systems" limited Entech's ability on identifying cost effective opportunities. Please explain. | 2. | The scope of this limited energy study project was clarified in a letter from E. Caulkins of Entech to K. Dooney, Ft. Monmouth dated 9/27/95. The letter addresses the change in scope beyond the steam system study to include possible energy savings opportunities with the remaining major HVAC systems in Building 2700. A preliminary list of ECOs was presented in that letter that became the basis for the final group of ECOs reviewed.<br>Additional clarification was gained with an earlier telephone conversation between J. Kendall, Norfolk District and E. Caulkins at Entech.<br><br>We believe our report addresses the most practical list of potential energy savings opportunities for Building 2700. The reason for the limited opportunities for this building can be attributed to the types of installations in this building.<br><br>The only opportunities that may exist beyond the list provided would come from areas supported by small dedicated systems that may or may not be inefficient. Even at that, changes in efficiencies for small systems do not generally pay for new equipment from an energy savings standpoint. The reference to the "large number of miscellaneous equipment" relates to the remaining pieces of cooling equipment not addressed by the ECOs. These individual systems may be in need of equipment changes but the scope of this limited study does not include those evaluations. |
| 3. | Pg 1-6, Table 1.7.1; What is the abbreviation "LCCID" mean? | 3. | Section 2.6.6. was updated to add the description for the acronym LCCID (Life Cycle Cost In Design). A note was added below Table 1.7.2 to refer to Section 2.6.6 for an explanation of the LCCID program. |

## Pre-final Review Comments and Responses

| Comment | | Response | |
|---|---|---|---|
| 4. | Pg 1-7, top pg; The sentence at top of page, "addresses" should be "addressed". | 4. | "Addresses" was changed to "addressed". |
| 5. | Pg 1-7; Is this the recommended "implementation plan"? the words "In order to go further ..." are not descriptive enough. | 5. | Page 1-7 was re-written to help clarify our intent. |
| 6. | Pg 1-7, para B; What is meant by a "strategic up front survey" and why wasn't this included in this study? It is one of the recommended ECOs. | 6. | Refer to the response for comment 2, and the changes created by comment 5 of page 1-7. Also refer to the response for comment 19. |
| 7. | Pg 2-8; The examples indicate inside temp of 65°F while the table indicates 72°F. The inside temp of 72°F is more realistic. Recommend degrees on pg 2-8 be changed. | 7. | The temperature in the sample calculation on Page 2-8 was changed to 72°F. Also, the U-value was corrected in the calculation to 0.55. The values determined for the Heat Loss and Cost in the sample calculation are correct. |
| 8. | Pg 2-9, Table 2.5.3.1; Roof "U" value of 0.11 does not seem correct. We design to U=0.03 now and over the past 20 yrs. the roof "U" value constructed for _____ at least U=0.05 | 8. | The U-value that we used was based on standard installation per ASHRAE Handbook 1977 Fundamentals. Nothing we saw from an installation standpoint or the drawings available to us suggested that the roof was of construction constituting U-values of 0.05 or better. In any event, changing the value would not have any significant effect on the ECO results. |
| 9. | Pg 2-10, para 2.5.4, 6th sent; Explain what is meant by this sentence - "Year round cooling and heating loads will be estimated based on building's usage". | 9. | This statement generalizes the approach of evaluating chunks of building space by the apparent utilization of the space(s), by the equipment supporting the area and by the relative location within the building. Refer to Section 5.4 beginning on Page 5-22 for more explanation on this approach. |
| 10. | Pg 2-14, winter and summer schedule; This does not agree with winter months at left bottom of Table 2.5.5.1. | 10. | The approach to the electric model for this project was to review the loads on a 3-season (4-month/season) basis for establishing demand and usage while the actual rates are bi-seasonal based. Summary calculations evaluate the cost associated with the totals for the summer (4-months) and non-summer periods (8-months). The reference to winter months in the lower left hand corner of the sample, Table 2.5.5.1 refers to the non-summer months. |

| Comment | | Response | |
|---|---|---|---|
| 11. | Pg 2-16, Table 2.5.5.1; Demand charge are $9.22 from June - Sept. How does this jive with info at left bottom of Table 2.5.5.1. Why is historical data absent? | 11. | The values at the lower left of Table 2.5.5.1 are different from the values determined later for Fort Monmouth because this table is a sample only. Also, no historical data is shown because it is a sample only. |
| 12. | Pg 2-21, para 2; deviation of $21.23 per mmBtu requires a "$" sign in numerator | 12. | Page 2-21 was corrected to add "$" in numerator. |
| 13. | Pg 2-25, para 2.7; There has never been a meeting scheduled with DPW to discuss report findings. Perhaps when these comments are received an "on-board review" at DPW can be scheduled. | 13. | As previously agreed upon, we would be available for a meeting once the review comments were made and addressed. |
| 14. | Pg 3-5, Table 3.3.2; The roof resistance value / "U" value does not appear correct. Roof replacement was completed. | 14. | Refer to comment item #8. |
| 15. | Pg 2-23, Table 2.6.6.1; Can this table be made to appear clearer than it is? How does this table fit into what we are doing? Purpose? | 15. | No. This table is an exact copy of what was received with the program. The table is a guideline of how one would go through the LCCID program commands/functions. It was provided as a reference to the LCCID approach. |
| 16. | Pg 1-5, 1-6, ECO Summary Table 1.6.1; Why are there no Non-ECIP, O&M projects developed, ie FEMP projects? | 16. | We did not identify any projects that fit the non-ECIP, O&M projects definition as stated on Page 7-3. |
| 17. | Pg 3-17, 3-18, Table 3.4.1.1 & 3.4.1.2; What does "Est" mean in the column headings? | 17. | The term "Est" means that every piece of information listed in the table was not identified from a drawing schedule, maintenance list, equipment tags, etc. Information was added and values calculated (estimated) where necessary to complete the table. We filled in these remaining columns with values based on the information available and/or good engineering judgement. (i.e. estimated in some cases). |
| 18. | Table 3.4.1.1 & 3.4.1.2; The point size is too small - recommend/request table be reprinted with point size of Table 3.4.1.6. | 18. | C-size drawings of the two tables in question are attached for your use. The 11x17 tables in the report were left as is. |

| Comment | Response |
|---|---|
| 19. Pg 3-14, Bldg 2700 exhaust and 5-33/34; The deficiency that exists would suggest to me that a possible Non-ECIP O&M project could be developed to remedy this deficiency. | 19. Yes, we recognize that the building as presently setup has significant deficiencies associated with a lack of outside air, and potentially excess exhaust. A project to add air where needed and to reduce air where not required by eliminating exhaust would go along way toward improving the air quality in the building. Such a project however, would not reduce overall energy costs. The costs would increase with the added outdoor air quantities. This study focused on energy savings opportunities and not building deficiencies. The project presented later as ECO-3 was a hypothetical situation based only on the reduction of unnecessary exhaust. |
| 20. Pg 3-15, 4th line from top; Cross reference specific page #'s where the discussion of exhaust, ventilation rates, infiltration occur in Section 5. | 20. Page 3-15 was revised to add reference details to "Section 5". |
| 21. Pg 3-25, 6th line from top; Bldg 2705 is not 30,000 sf. Our records indicate 47,592 sf. | 21. The square footage in this sentence was revised to match the exact total provided. |
| 22. Pg 3-27, 4th line; Why did Entech "assume" two pumps installed? In the note that follows the "pumps had failed? this cannot be an assumption. | 22. Page 3-27, Section 3.6 was rewritten to eliminate the assumption that "two domestic hot water pumps were installed". |
| 23. Pg 3-27, para 3.7, 6th line; Which feature (or both) is not being used. | 23. The sentence in question was clarified on page 3-27 addressing the use or non-use of time clocks. |
| 24. Pg 3-31, para 3.10, 9th line; Natural gas usage in lab areas should be more certain not "possibly" either by site inspection or interview with lab technicians this could be made certain. | 24. Since the available records suggested extremely low levels of gas usage, it was not considered important to identify all the minor users including labs. Only the expected gas usage associated with boilers was evaluated with the models and the ECOs. |
| 25. Pg 4-1, para 4.1 4th line, Pg 4-10, para 4.4; Natural gas billings were available for Bldg 2700 - if these were not being furnished Entech should have announced in stronger terms these were not provided. I recall hearing no objection by Entech personnel other than billings were required. Natural gas billings can be provided. | 25. We visited the Ft. Monmouth "energy" group on three different occasions to assist in the search for billing information associated with Building 2700. Several phone calls and faxes of request were made in an attempt to get more information. What is shown is what was either found and/or provided. Since the past use of gas was negligible relative to the projected future totals, the information provided was of little use anyway. New billing beyond (later than) the time period evaluated are not requested. |

| Comment | | Response | |
|---|---|---|---|
| 26. | Pg 4-1, 4.1, 14th line; Specify where in Section 5 these "details" may be found. | 26. | The line in question was modified to include the Section 5.6.3.1 reference. |
| 27. | Pg 4-7, para 4.2.3, Entech should contact the utility and verify what the interval is. | 27. | The interval as specified in ACP&L Rate Schedule Sheet No. 22, Revision 3, is 15 minutes as stated on Page 4-7. |
| 28. | Pg 4-11, 1st & 2nd line, Pg 4-12 Table 4.4.1; The natural gas data presented is useless. | 28. | Data is based on actual gas bills for Building 2700 for the time period of this report. The boilers were still running on oil during this period also. Also refer to response for comment 25. |
| 29. | Pg 4-15, 3rd line; The text should state "how" this adjustment was made and perhaps include an example. | 29. | The text Section 4-5, starting on page 4-12, modified to further clarify how the steam production totals were established. |
| 30. | Pg 4-17, para 4.6, 2nd line; Spell "production". | 30. | We have added the missing "i". |
| 31. | Pg 4-17, para 4.6, 5th line; Is it accurate to assume the efficiency of oil fired 1940 equipment for the (equal to) efficiency of the 1994 dual fuel oil and natural gas burners? Is natural gas more efficient then fuel oil? | 31. | Refer to the changes in Section 4-5 pertaining to comment 29. The changes in that section also address the questions presented here in this comment. |
| 32. | Pg 5-2, para 5.2.1, 4th line from bottom & Pg 5-3; Indicate where are the text the EZDOE results can be found. The various percentages given require some foundation. How were they determined? | 32. | The results are summarized on a yearly basis in Section 5.4.4, starting on page 5-39. The percentages or diversity factors used in steam models represent average estimates for the amount of connected load needed during a given time of day and year. We used the EZDOE results as a check for setting these factors along with engineering judgement for trends, balance, etc. |

Pre-final Review Comments and Responses

| Comment | Response |
|---|---|
| 33. Pg5-7, 7th line from top, Table 5.2.2.1 - 5.2.2.3; What is the basis/foundation for the assumption of the percentage? Is this the percentage of the connected load? The text should state "connected load" if it is. Reheat values seem high. | 33. Refer to the response for comment 32. Also we have added changes to Section 5-2 to clarify that the percentages relate to the connected loads as far as the reheat values go, the systems using reheat do so because of dehumidification concerns which inherently creates a constant discharge temperature scenario for these spaces. In the case of Building 2705 the reheat loads for the zones involved are highest at night during the winter because of the outdoor affect of heat loss, and the lack of internal gain in the space at night. This is typical for most systems with exception of cleanrooms which utilize high volumes of air and have internal heat gains on a more consistent basis. Therefore, the rise in space temperature is basically a constant year round and for the most part it is maintained by consistent levels of average reheat.<br>The actual values may fluctuate some with seasonal affects but with the great amount of air involved its impact is minimal. The values used in the study are adequate for the level of analysis involved. |
| 34. Pg 5-7, 5-8; The "reheat loads" for the cleanrooms as a constant year round value puzzles me and I don't understand the logic. The reheat values of Bldg 2705 in the summer seem equally illogical. Need your help understanding this. | 34. See response to comment 33. |
| 35. Pg 5-13, Table 5.2.6.1; The heading % - how were they determined? The same is typical for all categories. Text should explain how to the nearest 1/10% this was calculated (assumed). | 35. The approach is portioning a 100% of the steam produced by rounding the estimated steam model values to the nearest 1/10 of 1%. |
| 36. Pg 5-13, Table 5.2.6.1; 48.8% steam loss! Is our auditor going to "guffaw" at this value? Are we certain this is fairly reasonable & accurate? Seems unreasonable. | 36. As stated previously, the steam losses projected here may include losses in the boiler. Page 5-13 was modified to add a note about the steam loss numbers. We believe that this system as operating is creating an excessive amount of condensation. |
| 37. Pg 5-18, Fig 5.2.7.4; Figure shows steam losses at 49.6% is that figure a weighted average of 48.8, 49.8 & 53.5? | 37. Figure 5.2.7.4 is a graph of the average values presented in Table 5.2.7.3. |
| 38. Pg 5-20, Table 5.3.1; Roof "U" value is not 0.11. A factor of 0.05 is more reasonable. | 38. Refer to the response to comment 8. |

| Comment | | Response | |
|---|---|---|---|
| 39. | Pg 5-20, Table 5.3.1; The infiltration rate as compared with Table 2.5.2.1 is different - 0.2 chg/hr vs 0.6 chg/hr. The ventilation ratio appears to be very low! | 39. | The 0.6 air changes per hour (chg/hr) value in Table 2.5.2.1 is for a sample calculation only. The 0.2 chg/hr value used later in Figure 5.3.3 represents an average value for the entire area being evaluated in Building 2700. Infiltration occurs where air can move in and out of rooms next to walls, roofs, etc. The large spans of area in the middle core of the building doesn't figure into the air infiltration. But since the heat loss calculation uses the entire building area, we had to make air adjustment to the "chg/hr" for predicting the average per square foot infiltration totals. |
| 40. | Pg 5-22, Fig 5.3.3; Since the bldg's seriously deficient in ventilation does this figure have any validity? Infiltration ratio of 0.2 AC/hr vs. 0.6 AC/hr as low as it is would it constitute 38.4% in heat loss? Does this make sense in light of pg 3-14 connected load exhaust = 180,000 cfm multiplier = 65,000 cfm? | 40. | The 0.2 chg/hr value as explained in comment 39 creates a significant overall infiltration which constitutes close to 22% heating totals, see Figure 5.3.3 on page 5-22. Both the ventilation (outdoor) air and the infiltration air are combined to be exhausted out the roof. Refer to the explanation in Section 5.4.3 beginning on page 5-34. ECO-3 was also modified to reference Section 5.4.3. |
| 41. | Pg 4-18, Table 4.6.1; Recommend that this table be compared with the actual NG bills (enclosed) | 41. | No gas bills were enclosed. Generated estimated gas consumption was based on the time period with documented fuel oil usage. |
| 42. | Delete Comment | 42. | No response required. |
| 43. | Pg 5-26, Fig 5.4.2.2;<br>(a) MR#? = MR 11 & white (I-1to I-2)<br>(b) Stairway#4 should be violet color coded (magenta?)<br>(c) there is a unit heater which heats area behind breezeway entrance and adjacent to loading dock and stairway #5.<br>(d) Substation #5 should be violet. | 43. | Corrected and added drawing notes where appropriate-(a), (b) and(d)<br>(c) The blue area in the back represents MCA (III8 - III9) unit heaters. A steam heater exists in dock area from III 9 to III11. |
| 44. | Pg 5-27, Fig 5.4.2.3; (a) the main entrance has steam radiation heat inside col I9 to col I10<br>(b) the area between col I15 and II5 at the bldg exterior is MCA 2-pipe (light brown)<br>(c) there is a MR for PM JCALS located at bldg center line before col lines IV14 & IV15. Color light tan.<br>(d) MR#? between I17 &I18 = MR13 | 44. | Corrected, modified and added drawing notes where appropriate for (b), (c) and (d).<br>(a) From the design drawings and our walk thru it is our understanding that MCA air handlers and cabinet unit heaters serviced this area. |

| Comment | Response |
|---|---|
| 45. Comment Deleted | 45. No response required. |
| 46. Pg 5-28, Fig 5.4.2.4; (a)Center core area between col I6 & I9 is served by equipment in MR21 and is not MCA 2-pipe.<br>(b) Center core between I2 & I4 has a thru wall A/C & Liebert A/C for telephone room. | 46. (a) According to MCA drawing M-19, this area is supported by MCA system ductwork to/from Mechanical Room 21A above stairwell #1.<br>(b) The loads in this area were generally modeled as steam w/misc DX cooling. The study at this stage will not be updated for this equipment. |
| 47. Pg 5-27, Fig 5.4.2.3; (a) Extend light tan one bay south to III12 & III13<br>(b) MR#? between III9 & III10 is not a MR - delete from dwg. | 47. Corrected (a) and (b). |
| 48. Pg 5-26, Fig 5.4.2.2; (a) MR#12 should be white unheated space.<br>(b) delete<br>(c) Area between I17 & II4 should be green - cooling only.<br>(d) MR#? between III9 to III10 does not exist delete notation.<br>(e) Area between III10 to III13 should be light tan (not blue) | 48. Corrected (a), (c), (d), and (e). |
| 49. Pg 5-28, Fig 5.4.2.4; Between core I6 to I9 should be composite dark tan & green Not MCA 2-pipe! | 49. See response to comment 46 (a). |
| 50. Pg 5-29, Fig 5.4.2.5; Between Core II20 to III9 should be composite dark tan & green. | 50. Corrected this item. |
| 51. Pg 5-31, par 5.4.3, "City of ref"; "Long Beach" would be a more appropriate city of ref. than Newark. | 51. Newark NJ is the closest site with available weather data for EZDOE. |
| 52. Pg 5-34, 2nd line from bottom; Why is the connected O.A. quantity an "estimated" quantity? | 52. Outside air quantities were established from schedule or estimation. Scope of work did not include detailed evaluation of all HVAC equipment including TAB reports. |
| 53. Pg 5-36, 5-37, Tables 5.4.3.1 & 5.4.3.2; The AC/hr rate is given here as 0.8 for infiltration. See pg 5-20, Table 5.3.1 uses 0.2 AC/hr. In the degree day method, why are different values used? | 53. Higher value of 0.8 AC/hr was used for specific perimeter zones in EZDOE. Degree Day Method used 0.2 as an average for the total floor area combined. See response to comments 39 and 40 also. |
| 54. Delete comment | 54. No response required. |
| 55. Pg 5-42, Table 5.5.1.1; The title seams a little mislabeled what is "heating reheat…" | 55. Title should be "Heating/Reheat…" |

| Comment | Response |
|---|---|
| 56. Pg 5-19, 6th line from top; What does "cost estimate" have to do with the heat loss model? Is this a typo? | 56. The sentence in question on page 5-19 was modified to clarify the comment. |
| 57. Pg 5-42, Table 5.5.1.2, 5th line from bottom; The 1,417 tons peak cooling is not found in Table 5.5.1.2. This value is supported by the operation of only 1 MCA chiller during the summer months. | 57. The figure in this line was modified to read 1,330 which matches Table 5.5.1.2. Yes, the peak day of 640 tons of MCA water is less than the chiller capacity of one chiller, or 690 tons. |
| 58. Pg 5-50, Table 5.6.3.2, 5.6.3.3; The comparison of the models is not in the report I have or the Tables 5.6.3.2 and 5.6.3.3 | 58. The only comparison was made in Table 5.6.3.1. Tables 5.6.3.2 and 5.6.3.3. were not needed, and the reference on page 5-51 was deleted. |
| 59. Pg 6-2, 2nd line from top; An ECO to provide ventilation to balance the exhaust & infiltration requirements should have been developed FEMP? | 59. Refer to the response for comment 16 and 19. |
| 60. Pg 6-5, Bldg 2706, Boiler plant (MCA HW) 2nd sent; What is the basis for 15.2 mlbs/day? How does this jive with EZDOE of 3,460 mmBtu/yr (5,500 mmbtu/day)? | 60. The introduction to ECO-1 was modified to reduce confusion by removing the 15.2 mlbs/day reference. Table 5.5.1.1 was modified to read 5,500 mmBtu per year and this value matches the MCA totals from Table 5.4.4. |
| 61. Pg 6-9, proposed reheat (similarly Pg 6-15, & Pg 6-23); Boiler (HW not steam please) should be located in MR41 and MR42 not MR43. | 61. Pages 6-9, 6-15, and 6-23 were modified to add reference to the alternate choice, ECO-1B, for hot water boilers instead of steam boilers for the cleanroom areas. We selected MR43 because of its larger size and that it was relatively empty of useful equipment. MR41 and 42 are smaller and presently include operating equipment. |
| 62. Pg 6-21; (a)Please justify or provide basis in "factors" = labor = 55%, material = 10% (b) spell "contingency" | 62. (a) These are the markup values we use for labor and material. Their basis is from the Means Estimating Books, and generally the average impact of the two values is to create 25% markup. (b) Spelling has been corrected. |
| 63. Pg 6-22; What % applied to "overhead and profit" to be added to subtotal. | 63. The overhead and profit factors are 10% on materials and 55% on labor. The spreadsheet automatically calculates these values and adds them to the bare cost. |
| 64. Pg 6-29; Bldg has been replaced, not req'd, no cost. The overall cost is very high. | 64. Building 2704 was part of the scope during the development of the study. The costs included a new building to support new boilers. |

| Comment | | Response | |
|---|---|---|---|
| 65. | Pg 6-37, proposed, 2nd section; Aren't these really "preheat coils"? | 65. | Reheat coils are normally required for cleanroom temperature and humidity control requirements. Subcooling is required to remove moisture after which reheat is provided to maintain space temperature control. |
| 66. | Pg 6-40; More than 1 HW coil will be required. | 66. | The cost estimate states (3) coils at $5,000 each, implying one coil for each unit. The reality is that this will probably take multiple coils for a given AHU "coil". We believe the cost estimate is appropriate for the installation. |
| 67. | Pg 6-60 & attach 8.13; This is only a tape, bubble gum and string approach. The building lacks ventilation in accordance with ASHARE 62-1989. Isn't the fix proper ventilation & removal of excessive exhaust? Then infiltration will be reduced and fresh air requirements meet. I think we have some other type of project here. Re: page 6 of attachment 8.13. | 67. | Refer to responses to comments 16 and 19. As stated, fixing the building air balance problems cannot be paid for by energy savings. |
| 68. | Pg 6-17; The current operation of the MCA HW heating system is one boiler operating in standby. Can this be maintained with this option? | 68. | If the changes associated with ECO-1 are made, then it is quite possible that you may have to go to a second boiler during peak periods. This type of operation would equate to a system setup of two boilers operating at 60% capacity during peak periods. |

Attachment 8.15

Support Calculations

**Entech Engineering, Inc.**
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ENTECH

Project No. 4130.05
Date 4/30/97
Project FT. MONMOUTH
By
Subject CALCULATED STEAM LOADS SUMMARY
Page 1 of 4

Comments

SUMMARY FOR TABLE 5.2.1.1

WINTER

2700/2706 MCA HW

12AM-8AM $\frac{6250\ \#/HR \times .50 \times .75}{1.20} = 2000\ \#/HR$

8AM-4PM $\frac{6250\ \#/HR \times .50 \times .45}{1.20} = 1200\ \#/HR$

2700 MISC STEAM

12-8 AM $\frac{640\ \#/HR \times .50 \times 1.0}{2.0} = 160\ \#/HR$

8-4PM $\frac{640\ \#/HR \times .50 \times .7}{2.0} = 110\ \#/HR$

2700 AHU w/ STM HEAT

12-8 AM $\frac{3500\ \#/HR \times .5 \times .30}{1.25} = 420\ \#/HR$

8-4PM $\frac{3500\ \#/HR \times .5 \times .15}{1.25} = 210\ \#/HR$

BLDG 2704

12-8 AM $\frac{800\ \#/HR \times .5 \times .95}{2.0} = 190\ \#/HR$

8-4PM $\frac{800\ \#/HR \times .5 \times .65}{2.0} = 130\ \#/HR$

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ENTECH

Project FT. MONMOUTH

Subject CALC. STM LOADS SUMMARY

Project No. 4130.05

Date 4/30/97

By



Comments

BLDG 2705

12-8AM $\frac{420\,\#/HR \times .5 \times .5}{1.1} = 100\,\#/HR$

8-4PM $\frac{420\,\#/HR \times .5 \times .35}{1.1} = 70\,\#/HR$

BLDG 2715

12-8AM $\frac{87\,\#/HR \times .5 \times 1.0}{2.0} = 20\,\#/HR$

8-4PM $\frac{87\,\#/HR \times .5 \times .5}{2.0} = 10\,\#/HR$

Comments

INTERMEDIATE - TABLE 5.2.1.2

2700/2706 MCA HW

12 - 8 AM $\frac{6250\text{#/HR} \times .20 \times .75}{1.25} = 750\text{#/HR}$

8 - 4 PM $\frac{6250\text{#/HR} \times .20 \times .45}{1.25} = 460\text{#/HR}$

2700 MISC STM

12-8 AM $\frac{640\text{#/HR} \times .20 \times 1.0}{2.0} = 60\text{#/HR}$

8-4 PM $\frac{640\text{#/HR} \times .20 \times .50}{2.0} = 30\text{#/HR}$

2700 MISC AHU W/ STM

12-8 AM $\frac{3500\text{#/HR} \times .20 \times .25}{1.25} = 140\text{#/HR}$

8-4 pm $\frac{3500\text{#/HR} \times .20 \times .12}{1.25} = 70\text{#/HR}$

2704

12-8 AM $\frac{800\text{#/HR} \times .20 \times .95}{2.0} = 80\text{#/HR}$

8-4 pm $\frac{800\text{#/HR} \times .20 \times .65}{2.0} = 50\text{#/HR}$

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ENTECH

Project FT. MONMOUTH
Subject CALC. STM LOADS SUMMARY

Project No. 4130.05
Date 4/30/97
By


Comments

2705

12-8AM $\frac{420\ \#/HR \times .20 \times .50}{1.1} = 40\ \#/HR$

8-4PM $\frac{420\ \#/HR \times .20 \times .35}{1.1} = 30\ \#/HR$

2715

12-8AM $\frac{87\ \#/HR \times .2 \times 1.0}{2.0} = 10\ \#/HR$

8-4PM $\frac{87\ \#/HR \times .2 \times .50}{2.0} = 5\ \#/HR$

SUMMARY
TABLE 5.2.1.3

2700 MISC STM HTG

12-8AM $640\ \#/HR \times .15 \times .5 = 50\ \#/HR$

8-4PM $640\ \#/HR \times .15 \times .25 = 25\ \#/HR$